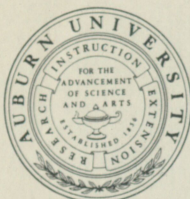


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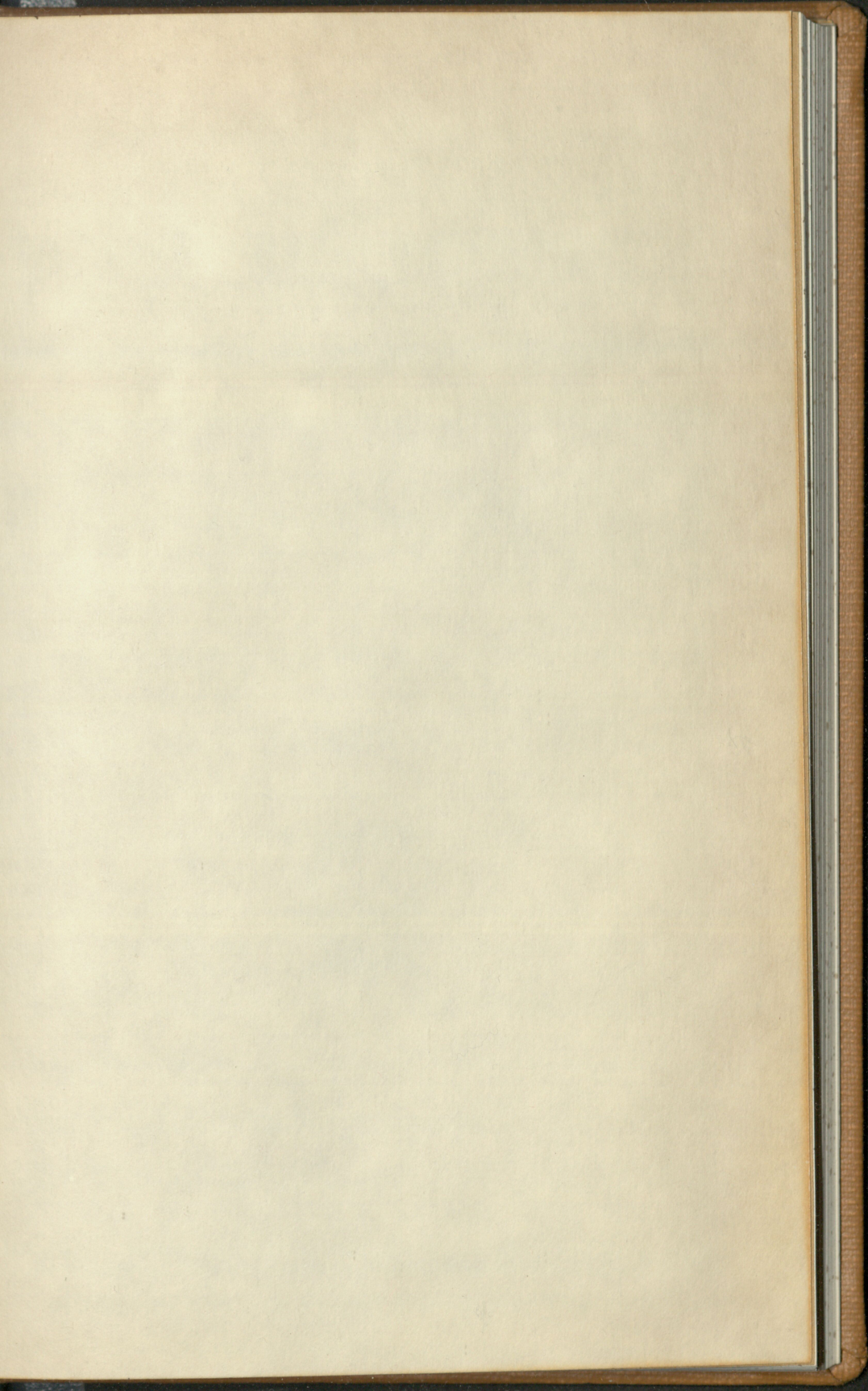


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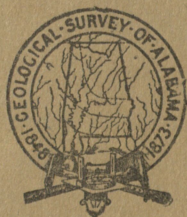
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ON THE

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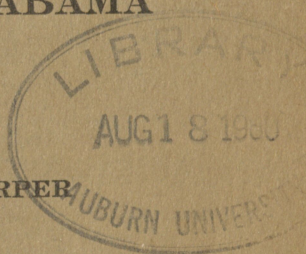
BY

ROLAND M. HARPER



UNIVERSITY, ALABAMA

1944



GEOLOGICAL SURVEY OF ALABAMA

WALTER B. JONES, STATE GEOLOGIST (ON LEAVE)

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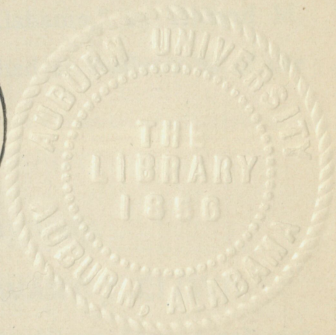
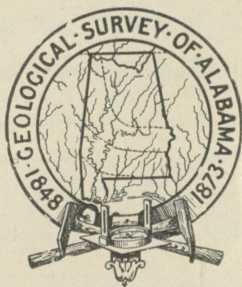
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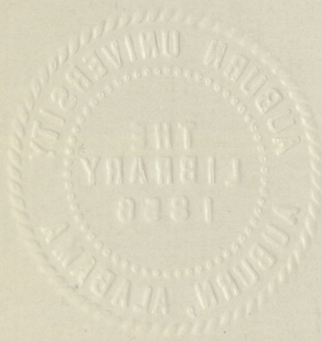
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LETTER OF TRANSMITTAL

University, Alabama

September 15, 1943

Honorable Chauncey Sparks

Governor of Alabama

Montgomery, Alabama

Dear Sir:

I have the honor to transmit herewith the manuscript of a
"Preliminary Report on the Weeds of Alabama," by Roland M.
Harper, with the request that it be published as Bulletin 53 of the
Geological Survey of Alabama.

Yours very truly,

STEWART J. LLOYD

• Assistant State Geologist

LETTER OF TRANSMITTAL

University of Alabama

November 17, 1913

Honorable Charles Smith

Governor of Alabama

Montgomery, Alabama

Dear Sir:

I have the honor to transmit herewith the manuscript of a
 "Preliminary Report on the Wildlife of Alabama," by Robert M.
 Hutton, with the request that it be published as Bulletin 33 of the
 Geological Survey of Alabama.

Yours very truly,

STEWART L. JACOBY

Geological Survey of Alabama

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INTRODUCTION

Although weeds have been an economic problem for many centuries, indeed ever since mankind began to cultivate the soil, opinions still differ as to the exact definition of weed.

Generally speaking, a weed is a plant that grows spontaneously in a habitat that has been greatly modified by human action, and especially a species chiefly or wholly confined to such habitats. (The qualification *spontaneously* is inserted here in order to exclude cultivated plants, which are planted purposely in artificial habitats, such as fields, gardens, yards and parks.) A weed is not necessarily a pest. It may be very objectionable because it competes with cultivated crops, or is unsightly, or poisonous, or it may be quite harmless, or even ornamental, or useful for medicine or forage. And some of our weeds have very interesting stories connected with them, calling for a page or more of text, as the reader can see in the catalogue of species.

Before the human race arrived in America, say 20,000 years ago, there could have been no weeds as such in this country, because there were no artificial clearings. But the Indian tribes, or some of them, made clearings for their villages, and for agricultural purposes, and it seems probable that several species of plants which grew naturally in rather open sunny places soon found such clearings to their liking, when the seeds were brought in by the wind, birds, etc. And it is also probable that some of them, after growing for centuries in open places with soil packed by trampling or loosened by cultivation, underwent evolutionary changes until they no longer closely resembled their wild ancestors.

At the same time the Indians did considerable trading with other tribes at a distance, and it is quite likely that they unconsciously brought seeds with them, and established some weeds in places where they never grew before. A few plants that they brought purposely from other places for food seem to have run wild to some extent, and ultimately become weeds. The wild (Chickasaw) plum and maypop are believed to belong to this category.

When white settlers arrived, after 1492, the number of weeds increased rapidly. The white man's clearings were much more extensive than those of the Indians, and the whites brought many more seeds, intentionally or otherwise, at first mainly from Europe,

but later to a considerable extent from tropical America. And within a century, or since the building of railroads, our weed flora has received several accessions from west of the Mississippi River.

The approximate date of introduction of a few of our weeds is known, but the vast majority came in unobtrusively, and attracted no attention at first, especially in the early days when there were no botanists to take note of such matters. And there is no telling how many have developed gradually from original wild ancestors right here.

There seem to be all gradations between weeds of known European, tropical or western origin and those that are native a few miles or even a few yards from where they are now found. For convenience we may divide our weeds into five categories.

First, those that are unquestionably native, but flourish to some extent in clearings, along roadsides, and in other weedy places. When a forest is cut away, either for lumber or to clear the ground for farming, some of the original native plants, particularly deep-rooted perennials, may persist for a few years, and assume a weedy aspect. If the land is cleared but not cultivated, a number of native plants that like open places may blow in from not far away, and flourish. When a cultivated field is abandoned, many weeds soon appear, but trees and other plants native in the surrounding forests tend to re-establish themselves, until in fifty years or so it may be scarcely distinguishable from the original forest. But some native species are much more ready to take advantage of such situations than others, and come in along with introduced species in the first year or two, while others are more particular, and may hesitate, so to speak, for a century or more to return to their original haunts.

Second, species which are presumably native, but are found oftener in weedy places than in undisturbed vegetation. Such species usually grew originally in rather open forests, or marshy places, so that it is not much of a change for them to establish themselves along roadsides or in old fields or along ditches.

Third, species alleged to be native, because they are not known outside the United States, but now strictly confined to weedy habitats. This is a rather large category, that has received comparatively little attention, probably because the average taxonomist does not appreciate the significance of habitat, but takes specimens

wherever he happens to find them, whether the habitat is normal or not, so that persons studying such specimens later may not even know which are natives and which are weeds. Thousands of plant descriptions have been based on pressed specimens of plants from distant regions, that the describers have never seen alive, and thus many important characteristics of flower shape, color, odor, etc., have been overlooked. For that reason, and others incident to extreme specialization, the average taxonomist is hardly a competent judge of what differences between plants are hereditary, and what are mere responses to the immediate environment.

At the same time the average ecologist, or plant sociologist, is not interested in minor specific differences, or in the history of the plants making up the vegetation he studies, and is easily satisfied with approximate identifications, so that his plant lists are not always dependable. And he is more interested in natural vegetation than in weeds, and may completely ignore the diversified flora of fields and roadsides.

A few of our supposed native weeds may have been introduced long ago from some undiscovered source, some may have been here all the time but completely disappeared from their original wild habitats, and some may have developed in the last few centuries by mutation from wild ancestors.

These native weeds might be called the "fifth columnists" of the vegetable world. For while generally accepted as natives, and their names printed in the same kind of type as those of true natives in our manuals, they join hands, so to speak, with foreign invaders to make trouble for farmers and others.

However, quite a number of weeds which forty or fifty years ago were thought to grow only in the United States, and therefore presumed native, are now known in Cuba, Mexico, or even farther south; and they may or may not have been there as long as here. And that brings up the question, were they introduced from the United States into Latin America, or vice versa, or are they native in both places?

Furthermore, if one should go to the supposed native countries of our weeds that are universally agreed to be introduced, they would probably be found to be just as "weedy" there as here. So the botanists of those countries would have the same problem of explaining their origin that we do with our native weeds here.

Fourth, species accidentally introduced from other states or countries. Most of these are worthless if not pestiferous, but a few are ornamental or medicinal. A subdivision of this class comprises species sometimes called "fugitives," or "waifs," found around seaports, railroad yards, factories, etc., which may come up from seeds accidentally dropped in open spaces, and flourish for a season or two, and then disappear, because our climate does not agree with them, or for some other reason.

Fifth, species originally cultivated for food, forage or ornament, which have found our soil and climate to their liking, and run wild more or less. Some of these, such as the Johnson and Bermuda grasses, still make good hay or pasture, while a few, like the Japanese honeysuckle, have become pests.

Some of the exotic plants escaped from cultivation, particularly certain trees cultivated for shade or ornament, such as the "mimosa," chinaberry, "tree of heaven," and Paulownia, spread by means of seeds, and are now firmly established, and may be found in pretty wild places. Some other ornamentals, mainly small trees or shrubs, such as the white poplar, paper mulberry, pink locust, crepe myrtle, periwinkle and Buddleia, and the calamus, used medicinally, may persist for many years after the house around which they were planted has disappeared, without producing good seeds, and perpetuate themselves by roots or suckers. There are also some cultivated food plants that often come up spontaneously from seeds dropped along roads, railroads, etc., but are unable to perpetuate themselves without human assistance. Familiar examples are corn and watermelons, and perhaps the apple and peach. Even the date palm has been known to grow in this way as far north as Massachusetts (and I have seen it in New York), where it never gets more than about a foot high before winter kills it.

In the catalogue of weeds, farther on, the group to which each species belongs will be indicated as far as possible, and after that there will be a table showing the approximate number of each group in each family. The number in each group has increased from practically nothing a few centuries ago, and is probably still increasing. Many of the species listed here were not recognized as Alabama weeds at the time of publication of Mohr's Plant Life of Alabama, in 1901, and it is reasonably certain that some of them were not in the state at all at that time.

PREVIOUS LITERATURE

Below are cited the titles of several works on weeds in Alabama and elsewhere, that should be of considerable interest to any one making a study of the subject, though the list makes no pretense of completeness. The arrangement is chronological.

James Mease, (M.D.) A geological account of the United States; comprehending a short description of their animal, vegetable and mineral productions, antiquities and curiosities.—16 mo., (viii +) 496 + xiv pp., and a few unnumbered plates. Philadelphia, 1807.

A chapter on "vegetables" (pages 217-304) contains some interesting notes on the history and properties of some of our weeds that are used for forage.

Thomas Nuttall. The genera of North American plants, and a catalogue of the species, to the year 1817.—12 mo., 2 vols. in 1, viii + 312 and 254 + 10 and 4 unnumbered pages of corrections and additions. Philadelphia, 1818.

Contains valuable notes on some of our weeds, some of which will be quoted in the following pages.

Stephen Elliott. A sketch of the botany of South Carolina and Georgia.—2 vols., published in parts, 1816-17, 1821-24.

Includes only a few Alabama plants, and those not weeds, but important as showing what was known about some of our common weeds in the first quarter of the 19th century.

William Darlington, (M.D.) Flora Cestrica; an attempt to enumerate and describe the flowering and filicoid plants of Chester County, in the state of Pennsylvania. With brief notices of their properties and uses, in medicine, domestic and rural economy, and the arts.—12 mo., xxi + 640 pp., with geological map for frontispiece. West Chester, Pa., 1837.

Contains descriptions of over 1000 species, native, introduced and cultivated, and original observations on each, many of which will be quoted in the following pages.

John Torrey and Asa Gray. Flora of North America.—2 vols. (never completed). New York, 1838-1841.

Important for its notes on the distribution of some of our weeds at that time; some of them apparently there reported from the United States for the first time.

A. W. Chapman, (M.D.) Flora of the southern United States.—xxxviii + 621 pp. New York, 1860. Second edition, 1883, has a supplement of 71 pages, with its own index of 4 pages. Third edition, 1892 (very rare), has a few more supplementary pages. Fourth (called third) edition, with xxxix + 655 pp., 1897, was completely rewritten.

These are useful in the present connection chiefly in tracing the increasing number of weeds with the passing years.

William Darlington (M.D.). Weeds of American agriculture.—Rep. U. S. Comm. Agric., 1865:509-519. 1866.

Charles Mohr. Foreign plants introduced into the Gulf states—Botanical Gazette, 3:42-46. May, 1878.

Discusses *Lepedeza striata*, *Acanthospermum*, and numerous other weeds.

Asa Gray. Synoptical Flora of North America. 1878 (etc.)

The Geological Survey's copy is a large octavo volume of 480 and vii + 494 pages, a revised reprint of Vol. 2, part 1 (first published in 1878), and the later Vol. 2, part 1, with some supplementary pages added to both, published under the auspices of the Smithsonian Institution in January, 1886. This volume covers all the Gamopetalous families, and is a continuation of the earlier work of Torrey and Gray, above cited, but was itself left unfinished, no more parts having been published. It contains many detailed notes on distribution, which have been useful in tracing the history of some of our weeds, and some of them are quoted in the following pages.

Asa Gray. The pertinacity and predominance of weeds.—Am. Jour. Sci., 118:161-167. September 1879.

Lists 86 species of aggressive weedy herbs from Europe naturalized in the Atlantic states, including 18 which are believed to be also indigenous somewhere in North America.

Eugene A. Smith. Report on the cotton production of the state of Alabama with a discussion of the general agricultural features of the state.—Tenth Census U. S., 6:3-173 (pp. i-vii, 1-163 of separates). 1884. Also reprinted about the same time, with some additional matter, as his Report of Progress of the Geological Survey of Alabama for 1881 and 1882.

On pages 67-69 (57-59) the plants characteristic of the several regions of the state, including quite a number of weeds specified as such, are listed by **Dr. Charles Mohr**. And in most of the county descriptions the weeds believed to be most troublesome are reported by leading farmers.

J. T. Henderson (Commissioner of Agriculture). The Commonwealth of Georgia, the country, the people, the productions—pp. 1-viii, 3-184, 184 a, 184b, 185-379, 13 text-figures and 15 double-page colored maps. Atlanta, 1885.

In a chapter on "Grasses in Georgia" (pp. 342-352), several forage plants, native, introduced and cultivated, are discussed; and his interesting observations on some of our weeds will be quoted farther on in this bulletin.

L. H. Dewey. Migration of weeds.—U. S. Dept. Agriculture Yearbook, 1896:263-286, figs. 59-73. 1897.

An important study. The last two figures are maps, showing the known distribution in the United States of six common weeds. Two that are now common in Alabama were not then supposed to grow in the state.

J. C. Neal (M.D.). Weeds of Florida.—Ann. Rep. Fla. Exp. Sta. (Bull. 8), pp. 7-16. 1890.

Lists 232 species, dividing them into aggressive, common and occasional, and indicating whether they are found in the northern or southern parts of the state, or both. Both native and introduced species are included, but some of the native species could hardly be branded as weeds, and the identifications in some cases are questionable. Predicts a considerable increase in number of weeds with increase of the cultivated area.

W. J. Beal. Six worst weeds.—Mich. Agric. Exp. Sta. Bull. 72. Abstract in Science, 17:200 (about 1/6 page). April 10, 1891.

(Editorial.) Destroying weeds by act of Congress.—Garden & Forest, 7:511-512 (½ page). Dec. 26, 1894.

Points out the futility of trying to control weeds by legislation, and says "New countries always suffer more from weeds than old ones do."

R. M. Harper. Notes on the flora of Middle Georgia.—Bull. Torrey Bot. Club, 27:320-341. June, 1900.

On page 329 lists 80 species of weeds (64 of them originally described by Linnaeus), without indication of abundance. (This list is comparable with that for the Piedmont region of Alabama in this bulletin.)

R. M. Harper. Notes on the flora of South Georgia.—Bull. Torrey Bot. Club, 27:413-436. "August" (September), 1900.

On page 421 lists 65 species of weeds (46 of them originally described by Linnaeus), without indication of abundance. They are from Sumter County, which embraces parts of two natural regions, corresponding to nos. 10 E and 12 of the present bulletin. In both papers there are notes on particular species of weeds, which were then supposed to be rare or previously unreported in Georgia. Most of them are now common in Alabama.

Charles Mohr. Plant Life of Alabama.—Contrib. U. S. Nat. Herbarium, vol. 6. 921 pp. July 31, 1901.

Weeds discussed specifically on pages 53-55, and incidentally under various regions. The catalogue of species gives the known distribution of all of them, and there are four columns for different groups of introduced plants in the summary table on pages 838-843.

V. K. Chesnut. Plants used by the Indians of Mendocino County, California.—Contr. U. S. Nat. Herb., 7:295-408, figs. 65-78, plates 10-21. Jan. 1902.

A few of the species listed are found also in Alabama, and Chesnut's notes on them will be referred to at the proper places.

F. S. Earle. Flora of the metamorphic region of Alabama.—Ala. Agric. Exp. Sta. Bull. 191. Pp. 43-120. Auburn, 1902.

Includes about 1140 species, in regions 4 and 5 of the present work. The notes on the distribution of each species average only about half a line, but the bulletin is useful for listing the weeds of the Piedmont region (no. 5).

John K. Small. Flora of the southeastern United States.—vii + 1370 pp. New York, 1903. Second edition, xii + 1394 pp. New York, 1913.

These floras, although called "southeastern," extend west to the 100th meridian in Oklahoma and Texas, while Chapman's "southern" floras stopped at the Mississippi River. The second edition differs from the first chiefly in the addition of 53 supplementary pages, and the reduction of the list of new names from 16 pages to 1; but 128 pages scattered through the text were reprinted, to put additional species on them.

M. L. Fernald. Some recently introduced weeds.—Trans. Mass. Hort. Soc., 1905:11-22. 1905.

R. M. Harper. A phytogeographical sketch of the Altamaha Grit region of the coastal plain of Georgia.—Ann. N. Y. Acad. Sci., vol. 17, part 1. "September" (November), 1906.

Weeds discussed on pages 114-117, and 77 species listed, with some indication of abundance. This region corresponds with the southwestern pine hills of Alabama (region 13 of the present bulletin).

R. M. Harper. Some native weeds and their probable origin.—Bull. Torrey Bot. Club, 35:347-360. 1908.

Refers mostly to New England and southern New York. Lists many typical species, and gives references to previous literature.

R. R. Gates. An analytical key to some of the segregates of *Oenothera*.—Ann. Rep. Mo. Bot. Gard., 20:123-137. 1909.

Deals largely with species and mutants known only in botanical gardens, but contains notes on *O. grandiflora* (one of our most interesting weeds). Specimens closely resembling it are said to have turned up in a back yard in St. Louis, and near Liverpool, England.

R. M. Harper. A botanical and geological trip on the Warrior and Tombigbee Rivers in the coastal plain of Alabama.—Bull. Torrey Bot. Club, 37:107-126. March, 1910.

River-bank weeds discussed on pages 117-120.

L. H. Pammel (and others). The weed flora of Iowa.—Iowa Geol. Survey, Bull. 4. xiii + 912 pp. Several hundred illustrations. 1913. Revised edition, vi + 715 pp. 1926.

A bibliography occupies pages 837-861 of the first edition, and pages 661-671 of the second.

R. M. Harper. A botanical cross-section of northern Mississippi, with notes on the influence of soil on vegetation.—Bull. Torrey Bot. Club, 40:377-399. August, 1913.

Arranges the plants seen in each region (mostly from trains) in order of abundance. Weeds are not distinguished as such, and vines are not separated from shrubs, but the great majority of the herbs seen, and most of the shrubs and vines in some regions, are weeds. The longest list of herbs is that for the prairie region, and it does not differ much from the black belt weed list in the present bulletin. (What I there called *Ambrosia bidentata* is more likely a species of *Iva*.)

H. A. Gleason and F. T. McFarland. The introduced vegetation in the vicinity of Douglas Lake, Michigan. *Bull. Torrey Bot. Club*, 41:511-521. Oct. 1914.

Discussed especially the relation of the number of weeds to distance from roads and settlements. Several of the species occur also in Alabama.

R. M. Harper. Geography and vegetation of northern Florida.—*Ann. Rep. Fla. State Geol. Survey*, 6:163-451. December 1914.

Commonest plants of the different regions listed in order of abundance, with weeds indicated by a special symbol. Two or three of the regions in West Florida extend into Alabama, and the weeds in the two states are naturally similar.

R. M. Harper. The plant population of northern lower Michigan and its environment.—*Bull. Torrey Bot. Club*, 45:23-42, figs. 1-3. Jan. 1918.

Based on observations made in the summer of 1912. The plants listed are arranged in approximate order of abundance, and weeds are indicated by a special symbol.

H. A. Gleason. The local distribution of introduced species near Douglas Lake, Michigan. *Torreyia*, 18:81-89. May, 1918.

Supplements the paper by Gleason & McFarland (1914) on the same area, with observations made in 1917.

E. N. Lowe. Plants of Mississippi.—*Miss. Geol. Surv. Bull.* 17. 293 pp. "Feb." (Sept.?) 1921.

Divides the state into natural regions, and sketches the vegetation of each. Lists about 1,000 species of vascular plants, with about two lines of distribution notes on each. Weeds were not adequately distinguished, but the information about some of them will be referred to in the following pages.

B. E. Livingston & F. Shreve. The distribution of vegetation in the United States, as related to climatic conditions.—*Carnegie Inst. Wash.*, publ. 284. xvi + 585 pp., 74 text-figs, 73 "plates" (mostly full-page maps in text). 1921.

Some of the maps show the supposed ranges of several of the weeds discussed herein, but some of them are based on incomplete information, and the ranges of weeds are subject to constant change anyway.

A. J. Pieters. Some immigrant clovers.—*Science* II. 59:39-40. (About 2/3 page). Jan. 11, 1924.

Lists 7 species of *Trifolium* (all but one described by Linnaeus), found along the railroad near Snow Hill station, Wilcox County, Ala., on May 13, 1923.

L. H. Bailey. Manual of cultivated plants.—851 pp., 14 figs. (mostly full-page). New York, 1924.

Covers the United States and Canada. Contains useful information about many of our weeds that are also cultivated, and about the number of species in different families and genera.

C. A. Cary, E. R. Miller, & G. R. Johnstone. Poisonous plants of Alabama.—Ala. Polytech. Inst. Extension Service, Circ. 71. 42 pp., 40 figs. 1924. Many of the species of course are weeds.

R. M. Harper. Natural resources of southern Florida.—Ann. Rep. Fla. State Geol. Survey, 18:27-206. January 1928.

Weeds discussed on pages 132-135. Several of the species listed are common also in Alabama.

R. M. Harper. The natural resources of Georgia.—Bull. Univ. Ga., vol. 30, no. 3. xi + 105 pp., 12 text figs. Athens, Ga, Feb. 1930.

About one page (93-94) devoted to weeds.

H. A. Gleason. Back yard botanizing.—Torreya, 30:1-6. February, 1930.

Discusses the weeds of a yard in Bronxville, N. Y., said to total over 150 species. Many of them are found also in Alabama.

Paul C. Standley. Flora of the Lancetilla Valley, Honduras.—Field Museum (Chicago) Pub. 283 (Bot. Series, Vol. 10). 418 pp., 67 plates. Jan. 1931.

Three pages (35-38) are devoted to weeds, with lists of the commonest supposed native and introduced species. Forty of the supposed natives are "excessively abundant," 36 are less abundant, and dozens of other common species are not listed at all. The presumably introduced species number 15. Over 20% of the species in each of these three categories are known as weeds in Alabama.

R. M. Harper. Persistence of exotic plants under forest conditions.—Torreya, 31:1-7. February 1931. Supplementary note in same, 31:48-49. April 1931.

Mostly about weeds, with special reference to Lee County, Georgia. Notes some common weeds observed in fall in recently cultivated and longer abandoned fields, and an interesting association of plants in an old cemetery. (What I called *Andropogon scoparius* is more likely *A. Virginicus*.)

R. M. Harper. *Erigenia bulbosa* and some associated and related plants in Alabama.—Torreya, 32:141-146. December 1932.

On pages 145-146 the distribution of *Daucus Carota* (wild carrot, or Queen Anne's lace) in Alabama is discussed.

R. M. Harper. A color phase of *Sitilias Caroliniana*, and some analogous variations in other genera.—Torreya, 33:143-146. December 1933.

Describes a form with cream-colored flowers, common around Tuscaloosa, and refers to some other weed problems.

John K. Small. Manual of the southeastern flora.—xxii + 1554 pp. New York, 1933.

This, being the latest reasonably complete flora of Alabama and neighboring states, has been referred to constantly in the preparation of this work, but has not been followed exactly in classification and nomenclature for reasons that seem sufficient. Like Chapman's Southern flora, but unlike Small's previous Southeastern floras, this stops at the Mississippi River (except for a few alleged species of *Iris* that were found west of the river near New Orleans).

M. F. Buell. *Acorus Calamus* in America.—*Rhodora*, 37:367-369. October, 1935.

R. M. Harper. Is *Acorus Calamus* native in the United States?—*Torreyia*, 36:143-147. "December 31, 1936." Supplementary note in same, 40:196. December 1940.

H. J. Romm. *Facelis retusa* (Lam.) Schultz Bip., a recent introduction to the campus of Tuskegee Institute, Macon County, Alabama.—*Jour. So. Appal. Bot. Club*, 2:2-4. "January" (March) 1937.

R. M. Harper. Evolutionary problems in some Alabama weeds. (Abstract.)—*Jour. Ala. Acad. Sci.*, 9:19. (June) 1937.

R. M. Harper. Mimicry in two southern weeds.—*Torreyia*, 37:104-108. 1937.

Discusses *Gymnostyles nasturtiifolia* and *Carara didyma*, found close together in Tuscaloosa and elsewhere, and some relatives of the former.

H. J. Romm. Notes on the noxious weeds of Macon County, Alabama.—*Castanea* (formerly *Jour. So. Appal. Bot. Club*), 3:29-32. "March" (April), 1938.

Lists 29 species, a few apparently wrongly identified, and some with common names taken from northern books rather than from local usage.

O. P. Medsger. Edible wild plants of the United States.—xv + 323 pp., and several unnumbered plates. New York, 1939.

Contains some interesting notes on some of our weed species.

Henry J. Oosting and Mary E. Humphreys. Buried viable seeds in a successional series of old field and forest soils.—*Bull. Torrey Bot. Club*, 67:253-273, figs. 1, 2 (graphs). April, 1940.

Based on studies in the vicinity of Durham, N. C. Contains lists of weeds, correlated with time elapsed since cultivation; and a bibliography.

Charles C. Deam. Flora of Indiana.—1236 pp., with half-tone frontispiece and 2243 distribution maps and 4 full-page maps in text. Indianapolis, 1940. Reviewed in *Torreyia* 42:53-56. 1942.

Useful in the present connection on account of its detailed notes on the habitats of various weeds, most of which are found also in Alabama.

William T. Penfound. The biology of *Dianthera Americana* L.—Am. Mid. Naturalist, 24:242-247, figs. 1-3. July, 1940.

William T. Penfound. The biology of *Achyranthes philoxeroides* (Mart.) Standley.—Am. Mid. Naturalist, 24:248-252, figs. 1, 2. July, 1940.

Thomas F. Hall. The biology of *Saururus cernuus* L.—Am. Mid. Naturalist, 24:253-260, figs. 1-3. July, 1940.

These three consecutive papers discuss the spread of these three aquatic plants in the backwaters of the recently constructed dams on the Tennessee River in Alabama. "Biology" is here used to mean life history.

Frank C. Gates. Weeds in Kansas.—Rep. Kan. State Bd. Agric., vol. 60, no. 243. 360 pp., several hundred text-figs. and a few unnumbered half-tones and colored plates 1941.

Contains bibliography of 2 pages.

H. N. Moldenke. Chile tarweed east of the Mississippi.—Torreya, 41: 162-164. "Sept.-Oct." (Nov.) 1941.

Records the occurrence of *Madia sativa capitata*, a far western species, in Alabama, Florida, Georgia and New York.

W. W. Robbins, A. S. Crafts, & R. N. Raynor. Weed control. A text-book and manual. xi + 543 pp., frontispiece and 202 text-figs. (mostly half-tones). New York and London, 1942.

Contains historical notes on important species, lists of American weeds introduced into Europe, supposed native American weeds, a chapter on important weeds, and numerous references to literature at the end of each chapter.

H. J. Oosting. An ecological analysis of the plant communities of Piedmont North Carolina.—Am. Mid. Naturalist, 28:1-126, figs. 1-19. July, 1942.

A large part of this paper is devoted to the succession of weeds in abandoned fields of various ages, which would apply almost equally well to Alabama, for the great majority of the weeds listed are common also in Alabama. Some earlier studies of the same sort are cited in the bibliography.

Rogers McVaugh. The vegetation of the granitic flat-rocks of the southeastern United States.—Ecological Monographs, 13:119-166, figs. 1-35 (maps and half-tones). April, 1943.

Contains some interesting notes on common weeds which have established themselves on some of the rock outcrops, and are considered by the author to be native there.

WEED HABITATS, ETC.

The principal habitats in which weeds are found in Alabama (as in other states) are cultivated fields and gardens, abandoned fields, pastures, barn lots, lawns and yards, roadsides and railroads, and ditches. Some species grow indiscriminately in several different habitats, but some are more particular. For example, in a field that is cultivated every year we are likely to find only annuals that can make a quick growth before the fields are plowed in spring or after plowing ceases in late summer (two quite different groups). In pastures we find two different classes of plants. First, grasses and other forage plants with perennial roots, that can renew themselves year after year when their leaves are grazed off, and second, plants that are not eaten by cattle because they are bitter, thorny, or otherwise unpalatable. Abandoned fields are likely to contain shrubs, woody vines and saplings, that would not be allowed to grow in a cultivated field. Indeed the changing weed vegetation in succeeding years after cultivation, from plowed field back to forest, would make an interesting study, which cannot be attempted at this time.

Some plants, especially those recently introduced, are likely to be found chiefly along railroads, where their seeds may have sifted out of cargoes of freight from distant states or countries. And the vast increase of automobile traffic in recent decades has brought weeds to our roadsides that were not seen there before. Some weeds are more or less characteristic of vacant lots in cities, and seldom seen in farming districts. Around seaports there are places where ships from all over the world dump their ballast, often containing seeds of strange weeds, that germinate and flourish for a time, but many of these do not persist, because our climate does not suit them perhaps.¹ Many such plants were found near Mobile by Dr. Mohr.

¹In the summer of 1902 the writer collected a *Sesuvium* among the wharves of Brunswick, Ga., which when taken to the New York Botanical Garden did not match any specimens on file there. And not until about thirty years later was it identified as *S. crithmoides* Welw., a native of Angola, a Portuguese colony on the southwest coast of Africa. (See Small, Manual of the Southeastern Flora, p. 492, 1933.)

One thing that most of our weed habitats have in common is pretty good protection from fire. A large proportion of them are annuals, which would be destroyed by fire, and in pastures, where the vegetation is mostly perennial, it is usually grazed too closely to be subject to fire. A large proportion of the species come from Europe, where vegetation fires are rare. The pine woods of southern Alabama, which are subject to frequent fires, are generally quite free of weeds, except along roads and edges of fields, which act as barriers to fire.²

Some authors of weed bulletins in other states have attempted to rate weeds in order of perniciousness; but that seems rather futile. A weed may be considered pernicious because it is very abundant, or competes actively with growing crops, or disfigures lawns, or because it is poisonous, or bears stinging hairs or annoying burs, or gives a bad taste to milk when eaten by cows. Whatever the economic properties of a weed, it varies in abundance from place to place, and for that reason alone may be considered a pest in some states and unimportant in others.

In the following pages the writer has attempted to list the weeds of each region in order of abundance; and their economic properties, etc., are discussed in the catalogue farther on. The relative abundance is rather uncertain at present, however, for I have never noted weeds as completely as native plants, and when in a hurry I may have ridden or even walked for miles along a road or railroad without noting any weeds at all.

Furthermore, the aspect of the weed vegetation varies greatly with the seasons. Many species bloom in spring and are very conspicuous for a time, and then wither away and disappear completely in summer, while others that are invisible or at least unrecognizable in the spring bloom in the fall; and between these are many summer-blooming weeds. So my weed lists are influenced considerably by the season in which the notes were taken.

Again, even if my field work in every region had been uniformly distributed through the year, the fall weeds are usually taller than those of spring, and thus more easily recognized

²See Torrey, 31:5-6. 1931.

from a moving train or car, and again some of them have stiff dead stems that are recognizable without much difficulty in mid-winter. So this tends to give the fall weeds an advantage. However, this is partly compensated by the fact that I have done more field work in the spring than in the fall, on account of the greater attractiveness of the native flora in spring.

But under each regional list the days of field work are given by months, so that the reader can judge for himself whether spring or fall weeds have been given an advantage.

In the regional treatment the regions are numbered the same as in our Monographs 8, 9, and 10, and the same regional map is used as in Monograph 10. Pretty full descriptions of the several regions are given in the last-named publication, and only brief outlines will be given here.

In each regional list there is given the technical name of each species, followed by its common name (if any) and its usual or prevailing habitat, in a word or two. The rarer species, say those that constitute not more than a thousandth part of the total weed vegetation, are usually omitted.

In nomenclature and classification I have generally followed the various southern floras by Dr. John K. Small (1903, 1913, 1933), mainly the last, except where it seems to have gone too far in splitting genera.

Common names given are mainly those believed to be in common use locally. Some taken from northern books or from other states are given in parentheses, but not recommended for adoption here; but wholly fictitious ones, such as mere translations of the technical names, which some authors use, are avoided. Some explanatory words are inserted in parentheses, and some misapplied or misleading names are put in quotations. Some of our rarer weeds simply have no common names yet, and there is no use pretending that they have.

Habitats cannot be described fully in a word or two, and if a species is attributed to only one habitat, that does not mean that it may not often be found in others.

EXPLANATION OF MAP ON OPPOSITE PAGE

The regions are indicated by numbers, as follows:—

- 1 A. The chert belt, mostly north of the Tennessee River.
- 1 B. The Tennessee Valley proper, very irregular in outline, and including the Moulton Valley (south of Little Mountain) and Brown's Valley (the southern prong), which are sometimes treated separately.
- 1 C. Little Mountain, a narrow continuous belt, more irregular in outline than the map shows.
- 2 A. The plateau region, a large main body, with several small irregular outliers north of the Tennessee River, and Lookout Mountain and Chandler Mountain separated a short distance from it on the southeast.
- 2 B. The coal basin region, a large continuous area in Walker and adjoining counties, and the Cahaba and Coosa coal fields parallel to its southeastern edge.
3. The Coosa Valley region, continuous, but surrounding several outliers of regions 2 A, 2 B and 4.
4. The Blue Ridge, with several outlying peaks and ridges of quartzite near its northwestern border.
5. The Piedmont region, a large triangular area in the eastern part of the state.
- 6 A. The central short-leaf pine belt. If drawn accurately, on a larger scale, its inland edge would show many irregular prongs and small outliers.
- 6 B. The central long-leaf pine hills. The boundaries are not very sharp, but it is shown on the map as a chain of seven "islands," separated by the valleys of rivers and large creeks.
- 6 C. The Eutaw belt, continuous across the state.
7. The black belt, continuous or practically so, but the eastern end is not very well defined.
8. The blue marl region, continuous except for a small outlier in Dallas and Lowndes Counties.
9. The post oak flatwoods, a narrow belt in the southwestern quarter.
10. The southern red hills, divided somewhat arbitrarily into a western and an eastern portion (10 W and 10 E).
11. The lime hills, not very distinct from 10 W, and separated here only by a broken line.
12. The lime-sink region, in the southeastern corner, with a supposed outlier in western Covington County (between two strips of the next), and another in Choctaw and Washington.
13. The southwestern pine hills, interrupted by the Mobile delta, and having outliers not far from the main body in Clarke, Covington and Geneva Counties.
14. The Mobile delta.
15. The coast strip, a small area with boundaries not sharply marked, comprising the islands of the Gulf coast and a small strip of mainland near by.

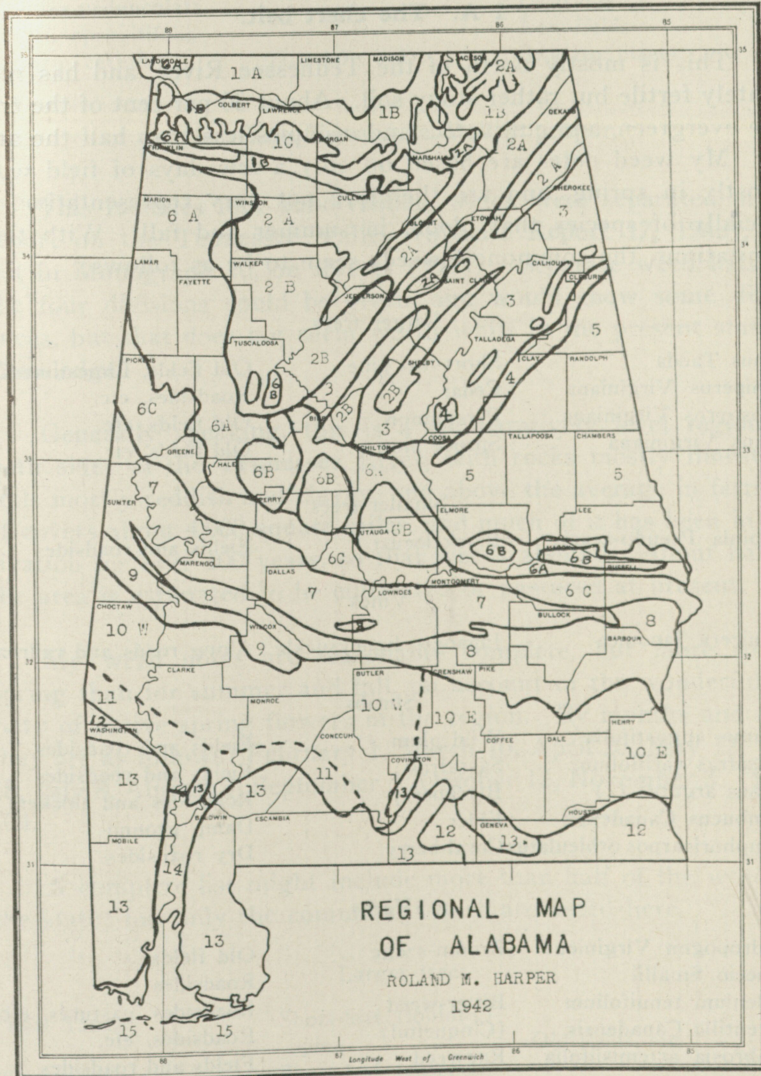


Fig. 1. Regional map of Alabama.

Explanation on opposite page.

REGIONAL LISTS

1 A. The chert belt.

This is mostly north of the Tennessee River, and has moderately fertile but rather stony soil. About 30 per cent of the trees are evergreen, and cultivated land occupies less than half the area.

My weed notes are based on only a few days of field work, mostly in spring, and are therefore not very representative, especially of species that bloom in summer and fall. With these limitations, the commonest weeds seem to be as follows:

Larger trees

<i>Pinus Taeda</i>	Short-leaf pine	Old fields, Limestone Co.
<i>Juniperus Virginiana</i>	Cedar	Roadsides, etc.
<i>Diospyros Virginiana</i>	Persimmon	Old fields, etc.
<i>Pinus Virginiana</i>	Spruce pine	Old fields, etc.

Smaller trees

<i>Robinia Pseudo-acacia</i>	Black locust	Fields and roadsides
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Vines

<i>Lonicera Japonica</i>	Japanese honeysuckle	Along roads and railroads
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Shrubs

<i>Prunus angustifolia</i>	Wild plum	Fields and roadsides
<i>Sassafras variifolium</i>	Sassafras	Fields and roadsides
<i>Rubus argutus</i> (?)	Blackberry	Roadsides and thickets
<i>Sambucus Canadensis</i>	Elder	Damp ground
<i>Symphoricarpos orbiculatus</i>	Coral-berry	Dry roadsides

Herbs

<i>Andropogon Virginicus</i>	Broom-sedge	Old fields
<i>Senecio Smallii</i>		Roadsides
<i>Helenium tenuifolium</i>	Bitter-weed	Roadsides, pastures, etc.
<i>Potentilla Canadensis</i>	(Cinquefoil)	Roadsides, etc.
<i>Ambrosia artemisiifolia</i>	Ragweed	Fields and roadsides
<i>Erigeron</i> sp. ³		Fields and roadsides
<i>Cerastium nutans</i> (?)	(Mouse-ear chickweed)	Fields
<i>Melilotus alba</i>	Sweet clover	Roadsides, etc.
<i>Senecio glabellus</i>		Damp fields
<i>Aster pilosus</i>	Aster	Fields and roadsides
<i>Geranium Carolinianum</i>		Roadsides mostly

³See catalogue for explanation.

<i>Oenothera biennis</i>	(Evening primrose)	Fields and roadsides
<i>Bromus Japonicus</i>	(A grass)	Along roads and railroads
<i>Psoralea pedunculata</i>		Clearings
<i>Serinea oppositifolia</i>		Low fields
<i>Saururus cernuus</i>	(Lizard's tail)	Swampy places

1 B. The Tennessee Valley proper.

This includes four subdivisions, which were separated in my report on the Tennessee Valley (Special Report 17, 1942), but not in Monograph 10, on forests (1943). Separate weed lists for the four divisions could be given, and would show some differences, but that does not seem worth while in the present state of knowledge.

Generally speaking, this is a comparatively level region on both sides of the Tennessee River, with rocks mostly limestone, soils mostly reddish and clayey, and above the average in fertility. It covers about 4,000 square miles, and much of it has been in cultivation for over 100 years, so that weeds abound. About half of the area is estimated to be cultivated or pastured at present.

My weed notes are reasonably complete, but more so for spring than for summer and fall, on account of the wonderful variety of native spring flowers in the region. By months and days they are as follows: February 1, March 16, April 26, May 12, June 18, July 8, August 3, September 4, October 13, November 3. Total 104.

A complete list might include more than half of the weeds in the state; but only the commonest ones are listed here.

Larger trees

<i>Pinus Taeda</i>	Short-leaf (loblolly) pine	Old fields, etc.
<i>Pinus echinata</i>	Short-leaf (rosemary) pine	Old fields, etc.
<i>Diospyros Virginiana</i>	Persimmon	Fields and roadsides
<i>Juniperus Virginiana</i>	(Red) cedar	Roadsides, etc.
<i>Gleditsia triacanthos</i>	(Honey) locust	Roadsides, etc.
<i>Pinus Virginiana</i>	(Spruce) pine	Old fields, etc.
<i>Liquidambar Styraciflua</i>	Sweet gum	Old fields, etc.
<i>Papyrius papyrifera</i>	Paper mulberry	Near dwellings

<i>Paulownia tomentosa</i>		Near dwellings
<i>Melia Azedarach</i>	Chinaberry	Fence-rows, etc.
<i>Ailanthus altissima</i>	(Tree of heaven)	Near dwellings
Smaller trees		
<i>Robinia Pseudo-acacia</i>	Black locust	Fields and roadsides
<i>Salix nigra</i>	Willow	Along ditches, etc.
Vines		
<i>Lonicera Japonica</i>	Japanese honeysuckle	Roads, railroads, etc.
<i>Tecoma radicans</i>	(Trumpet creeper)	Fields and roadsides
<i>Smilax glauca</i>		Dry old fields
<i>Berchemia scandens</i>	Rattan vine	Rich soils
<i>Rubus trivialis</i>	Dewberry	Fields and roadsides
<i>Smilax rotundifolia</i> (?)		Thickets
<i>Vitis cordifolia</i>	(Wild grapes)	Roadsides, etc.
<i>Ampelopsis arborea</i>		Damp rich soils
Shrubs		
<i>Prunus angustifolia</i>	Wild plum	Fields and roadsides
<i>Sassafras variifolium</i>	Sassafras	Fields and roadsides
<i>Rubus argutus</i> (?)	Blackberry	Roadsides and thickets
<i>Sambucus Canadensis</i>	Elder	Damp grounds
<i>Symphoricarpos orbiculatus</i>	(Coral-berry)	Calcareous roadsides
<i>Rhus glabra</i>	Sumac	Roadsides, etc.
<i>Rhus copallina</i>	Sumac	Roadsides, etc.
<i>Callicarpa Americana</i>	Foxberry	Clearings, etc.
<i>Rubus procerus</i>	Himalaya blackberry	Near towns
<i>Diospyros Virginiana</i>	Persimmon (bushes)	Fields and pastures
<i>Rosa bracteata</i>	(White) rose	Pastures, etc.
<i>Rhamnus Caroliniana</i>		Calcareous roadsides
Herbs		
<i>Helenium tenuifolium</i>	Bitter-weed	Roadsides, etc.
<i>Sorghum Halepense</i>	Johnson grass	Roadsides, etc.
<i>Daucus Carota</i>	Queen Anne's lace	Roadsides, etc., eastward
<i>Ambrosia artemisiifolia</i>	Ragweed	Roadsides, etc.
<i>Aster pilosus</i>	Aster	Dry fields and roadsides
<i>Anthemis Cotula</i>	Dog-fennel	Roadsides and pastures
<i>Erigeron sp.</i> ³		Fields and roadsides
<i>Eupatorium serotinum</i>		Low pastures, etc.
<i>Senecio glabellus</i>		Low fields
<i>Leptilon Canadense</i>	Horse-weed	Fields
<i>Syntherisma sanguinale</i>	Crab-grass	Fields
<i>Senecio Smallii</i>		Roadsides and pastures
<i>Ambrosia trifida</i>	(Giant ragweed)	Damp rich soils

³See catalogue for explanation.

<i>Andropogon Virginicus</i>	Broom-sedge	Old fields
<i>Melilotus alba</i>	Sweet clover	Roadsides, etc.
<i>Lespedeza striata</i>	Japanese clover	Roadsides, etc.
<i>Allium vineale</i>	Wild onion	Pastures, etc.
<i>Clinopodium Nepeta</i>	(Mint)	Roadsides, etc.
<i>Capriola Dactylon</i>	Bermuda grass	Roadsides, etc.
<i>Geranium Carolinianum</i>		Roadsides, etc.
<i>Viola Rafinesquii</i>	Johnny-jump-up	Roadsides, etc.
<i>Plantago aristata</i>		Dry roadsides
<i>Xanthium Americanum</i> (?)	Cocklebur	Fields
<i>Solidago Canadensis</i> (?)	Goldenrod	Roadsides, etc.
<i>Helenium nudiflorum</i>		Pastures, etc.
<i>Erigeron ramosus</i>		Fields and roadsides
<i>Verbascum Thapsus</i>	Mullein	Roadsides and pastures
<i>Plantago lanceolata</i>	Plantain	Roadsides, etc.
<i>Bromus Japonicus</i>	(A grass)	Along railroads, etc.
<i>Eupatorium capillifolium</i>	"Summer cedar"	Pastures, etc.
<i>Verbena angustifolia</i>		Roadsides
<i>Chaerophyllum</i> sp.		Roadsides, etc.
<i>Trifolium procumbens</i> (?)	(Yellow) clover	Roadsides, etc.
<i>Lactuca Scariola</i>	(Prickly lettuce)	Along railroads, etc.
<i>Draba brachycarpa</i>		Fields
<i>Serinea oppositifolia</i>		Low fields
<i>Bursa Bursa-pastoris</i>	(Shepherds purse)	Roadsides, etc.
<i>Raimannia laciniata</i>	(Evening primrose)	Fields and roadsides
<i>Allium Canadense</i> (?)	Wild onion	Fields
<i>Arctium minus</i>	(Burdock)	Near dwellings
<i>Houstonia minor</i>	"Daisies"	Pastures, etc.
<i>Diodia teres</i>		Dry fields and roadsides
<i>Phytolacca Americana</i>	Pokeberry	Near dwellings
<i>Juncus macer</i>	(A rush)	Along paths, etc.
<i>Solanum Carolinense</i>		Fields and roadsides
<i>Plantago Virginica</i>	Plantain	Fields and roadsides
<i>Hartmannia speciosa</i>	"Primrose"	Roadsides, etc.
<i>Lamium amplexicaule</i>		Gardens, etc.
<i>Specularia</i> sp. ⁴		Roadsides, etc.
<i>Alopecurus Carolinianus</i>	(A grass)	Low fields
<i>Oenothera biennis</i>	(Evening primrose)	Fields and roadsides
<i>Vicia angustifolia</i>	Vetch	Roadsides, etc.
<i>Typha latifolia</i>	Cat-tail	Wet places
<i>Draba verna</i>		Pastures, etc.

1 C. Little Mountain.

This is a narrow belt in northwestern Alabama, only about five miles wide, and its southern boundary is ill-defined, so that I could not always be sure when I was in the region. The under-

⁴This may represent two species. See catalogue.

lying rock is nearly all sandstone, and the soils are therefore rather sandy and poor. Cultivated land probably does not cover over 40 per cent of the area.

My notes on weeds, by months and days, were taken as follows: March 2, April 2, May 1, June 2, September 2, October 3. Total 11 days.

The commonest species of weeds seem to be as follows:

Trees		
<i>Pinus Virginiana</i>	(Spruce) pine	Old fields, etc.
Vines		
<i>Lonicera Japonica</i>	Japanese honeysuckle	Roadsides, etc.
Shrubs		
<i>Rubus argutus</i> (?)	Blackberry	Roadsides, etc.
<i>Symphoricarpos orbiculatus</i>	(Coral-berry)	Dry roadsides
<i>Rhus copallina</i>	Sumac	Roadsides, etc.
<i>Prunus angustifolia</i>	Wild plum	Fields and roadsides
Herbs		
<i>Syntherisma sanguinale</i>	Crab-grass	Fields
<i>Aster pilosus</i>	(Aster)	Dry fields and roadsides
<i>Andropogon Virginicus</i>	Broom-sedge	Old fields
<i>Aster surculosus</i>		Dry roadsides
<i>Helianthemum tenuifolium</i>	Bitter-weed	Roadsides, etc.
<i>Ambrosia artemisiifolia</i>	Ragweed	Roadsides, etc.
<i>Diodia teres</i>		Dry fields and roadsides
<i>Ispedeza striata</i>	Japanese clover	Fields and roadsides
<i>Xanthium Americanum</i> (?)	Cocklebur	Fields
<i>Leptilon Canadense</i>	Horse-weed	Fields
<i>Triodia flava</i>	(A grass)	Dry roadsides
<i>Solidago Canadensis</i> (?)	Goldenrod	Roadsides, etc.
<i>Morongia uncinata</i>	Shame-brier	Old fields, etc.

2 A. The plateau region.

This is a comparatively level region for its high elevation (averaging about 1,000 feet above sea-level), covering about 3,200 square miles in the northern part of the state. The rock is nearly all sandstone, and the soils therefore sandy and rather poor. Cultivated land has increased rapidly, with the aid of commercial fertilizers, and was estimated at about 37 per cent in 1940.

Weeds are not very numerous yet, on account of the poor soil and the comparatively recent development of agriculture, but my notes so far tabulated doubtless do not do justice to them yet. By months and days the notes are as follows: March 1, April 1, May 2, June 2, July 1, August 2, September 4. Total 13.

The commonest weeds seem to be as follows:

Vines

<i>Lonicera Japonica</i>	Japanese honeysuckle	Mostly in and near towns
<i>Smilax glauca</i>		Dry fields

Shrubs

<i>Prunus angustifolia</i>	Wild plum	Fields and roadsides
<i>Rubus argutus</i> (?)	Blackberry	Fields and roadsides
<i>Rhus glabra</i>	Sumac	Roadsides, etc.
<i>Rhus copallina</i>	Sumac	Dry roadsides, etc.
<i>Sambucus Canadensis</i>	Elder	Damp grounds
<i>Sassafras variifolium</i>	Sassafras	Fields and roadsides

Herbs

<i>Andropogon Virginicus</i>	Broom-sedge	Old fields
<i>Helenium tenuifolium</i>	Bitter-weed	Roadsides, etc.
<i>Syntherisma sanguinale</i>	Crab-grass	Fields
<i>Ambrosia artemisiifolia</i>	Ragweed	Roadsides, etc.
<i>Diodia teres</i>		Dry roadsides, etc.
<i>Potentilla Canadensis</i>	(Cinquefoil)	Roadsides, etc.
<i>Lepedeza striata</i>	Japanese clover	Roadsides, etc.
<i>Hedeoma pulegioides</i>	Pennyroyal	Pastures, etc.
<i>Leptilon Canadense</i>	Horse-weed	Fields
<i>Aster surculosus</i>		Dry roadsides
<i>Erigeron ramosus</i>		Waste places
<i>Perilla frutescens</i>		Roadsides, etc.
<i>Chamaesyce nutans</i>		Roadsides, etc.
<i>Sarothra gentianoides</i>		Dry fields

2 B. The Warrior coal field, or basin region.

The main area of this borders the plateau on the south, and differs mainly in having the rocks more shaly, and weathering into better soil, but the region is so cut up by valleys, bordered by rather steep slopes, that less than 25 per cent of it is estimated to be in cultivation. There are also two outlying areas on the southeast, the Cahaba and Coosa coal fields, which consist largely of sandstone ridges, with comparatively little farming.

My notes on weeds are not very complete, having been made on two days in April, one in August, two in October, three in November, and one in December. So spring weeds are poorly represented in the following list.

Trees

<i>Diospyros Virginiana</i>	Persimmon	Old fields, etc.
<i>Pinus Virginiana</i>	Cliff pine	Old fields, etc.

Vines

<i>Lonicera Japonica</i>	Japanese honeysuckle	Roadsides, etc.
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Shrubs

<i>Rhus copallina</i>	Sumac	Dry roadsides, etc.
<i>Prunus angustifolia</i>	Wild plum	Fields and roadsides
<i>Rhus glabra</i>	Sumac	Roadsides, etc.
<i>Sambucus Canadensis</i>	Elder	Damp grounds
<i>Rubus argutus</i> (?)	Blackberry	Roadsides, etc.
<i>Callicarpa Americana</i>	French mulberry	Clearings

Herbs

<i>Helenium tenuifolium</i>	Bitter-weed	Roadsides, pastures, etc.
<i>Andropogon Virginicus</i>	Broom-sedge	Old fields
<i>Eupatorium capillifolium</i>	"Summer cedar"	Pastures, etc.
<i>Sarothra gentianoides</i>		Dry old fields
<i>Lespedeza striata</i>	Japanese clover	Roadsides, etc.
<i>Croton capitatus</i>		Dry roadsides
<i>Verbesina Virginica</i>		Roadsides
<i>Verbesina occidentalis</i>		Roadsides
<i>Perilla frutescens</i>		Roadsides, etc.
<i>Verbascum Thapsus</i>	Mullein	Pastures, etc.
<i>Phytolacca Americana</i>	Pokeberry	Near dwellings
<i>Ambrosia artemisiifolia</i>	Ragweed	Roadsides, etc.
<i>Leptilon Canadense</i>	Horse-weed	Fields
<i>Xanthium Americanum</i>	Cocklebur	Fields
<i>Cassia occidentalis</i>	Coffee-weed	Barn lots, etc.
<i>Diodia teres</i>		Dry fields and roadsides
<i>Chamaesyce supina</i>		Roadsides, etc.

3. The Coosa Valley.

This covers about 4,000 square miles, just southeast of the plateau and Warrior basin, and partly surrounding some of the small outlying coal fields. It resembles the Tennessee Valley in having much limestone and fertile soil, but differs in having nu-

merous longitudinal ridges of sandstone and chert, which give it greater diversity. Some of the more level valley lands have been cultivated a long time; but on account of the broken topography and abundance of chert, etc., only about 30 per cent of the area is under cultivation.

My notes on weeds are fairly well distributed through the growing season, the various months being represented as follows: February 2, April 5, May 4, June 4, August 9, September 3, October 1, November 6. Total 34 days.

The commonest weeds seem to be as follows:

Larger trees

<i>Diospyros Virginiana</i>	Persimmon	Fields and pastures
<i>Pinus Taeda</i>	Short-leaf (loblolly) pine	Old fields
<i>Pinus echinata</i>	Short leaf pine	Old fields
<i>Pinus Virginiana</i>	Spruce pine	Old fields
<i>Juniperus Virginiana</i>	(Red) cedar	Roadsides, etc.
<i>Melia Azedarach</i>	Chinaberry	Fence-rows, etc.

Smaller trees

<i>Salix nigra</i>	Willow	Wet places
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Vines

<i>Lonicera Japonica</i>	Japanese honeysuckle	Roadsides, etc.
<i>Tecoma radicans</i>	(Trumpet creeper)	Fields and roadsides
<i>Smilax glauca</i>		Dry old fields

Herbs

<i>Helenium tenuifolium</i>	Bitter-weed	Roadsides, pastures, etc.
<i>Sorghum Halepense</i>	Johnson grass	Roadsides, etc.
<i>Leptilon Canadense</i>	Horse-weed	Fields
<i>Eupatorium capillifolium</i>		Roadsides, etc.
<i>Erigeron ramosus</i>		Dry old fields, etc.
<i>Typha latifolia</i>	Cat-tail	Ditches, etc.
<i>Ambrosia artemisiifolia</i>	Ragweed	Roadsides, etc.
<i>Daucus Carota</i>	Queen Anne's lace	Roadsides, northeastward
<i>Aster pilosus</i>		Dry roadsides, etc.
<i>Anthemis Cotula</i>	Dog-fennel	Roadsides, pastures, etc.
<i>Senecio Smallii</i>		Roadsides, pastures, etc.
<i>Eupatorium serotinum</i>		Low pastures, etc.
<i>Andropogon Virginicus</i>	Broom-sedge	Old fields

<i>Scirpus Eriophorum</i>	(Bulrush)	Wet places
<i>Oenothera biennis</i>	(Evening primrose)	Fields and roadsides
<i>Solidago Canadensis</i> (?)	Goldenrod	Roadsides, etc.
<i>Erianthus</i> sp.	(Plume grass)	Damp rich soils
<i>Triodia flava</i>	(A grass)	Dry roadsides
<i>Plantago aristata</i>	(Plantain)	Dry roadsides
<i>Vernonia altissima</i> (?)	(Ironweed)	Low pastures
<i>Tripsacum dactyloides</i>	(A grass)	Damp roadsides
<i>Senecio glabellus</i>		Damp fields
<i>Syntherisma sanguinale</i>	Crab-grass	Fields
<i>Cassia Tora</i>	Coffee weed	Roadsides, etc.
<i>Daucus pusillus</i>		Roadsides, etc.
<i>Phytolacca Americana</i>	Poke-berry	Near dwellings

4. The Blue Ridge.

This includes a series of high rocky ridges on the southeast side of the Coosa Valley, culminating in Cheaha Mountain, the highest point in the state, about 2,400 feet above sea-level. There is practically no farming,⁵ and a weed list would be confined to a few species seen along roads. On a visit to the summit of Cheaha in July, 1940, a few years after it had been made a state park, I noticed that *Lactuca Scariola*, the prickly lettuce, a worthless weed found principally along railroads, had already established itself along the road near the summit. And there will probably be others arriving nearly every year.

5. The Piedmont region.

This is a triangular area, about 5,000 square miles, of crystalline rocks in the eastern half of the state. The rocks are granite, gneiss, schist, etc., and they weather into soils of moderate fertility, usually reddish in color, and clayey in texture.

Only about 35 per cent of the area is under cultivation, but the forests have been pretty well cut over, which makes the flora rather uninteresting; and largely for that reason I have not spent enough time in the region to do justice to the weeds. My notes by months and days are as follows: February 1, April 10, May 1, July 3, August 2. This gives the spring weeds a decided advantage over those of fall in the following very incomplete list:

⁵See map on page 34 of our Monograph 9. 1928.

Larger trees

<i>Pinus echinata</i>	Short-leaf pine	Old fields, etc.
<i>Pinus Taeda</i>	Short-leaf (loblolly) pine	Old fields, etc.
<i>Melia Azedarach</i>	Chinaberry	Edges of fields
<i>Diospyros Virginiana</i>	Persimmon	Fields and pastures
<i>Liquidambar Styraciflua</i>	Sweet gum	Old fields, etc.

Smaller trees

<i>Salix nigra</i>	Willow	Wet places
<i>Crataegus spathulata</i>	Haw	Roadsides, etc.

Vines

<i>Lonicera Japonica</i>	Japanese honeysuckle	Roadsides, etc.
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Shrubs

<i>Prunus angustifolia</i>	Wild plum	Fields and roadsides
<i>Sambucus Canadensis</i>	Elder	Low grounds
<i>Rhus glabra</i>	Sumac	Roadsides, etc.
<i>Rhus copallina</i>	Sumac	Roadsides, etc.
<i>Sassafras variifolium</i>	Sassafras	Fields and roadsides
<i>Rubus argutus(?)</i>	Blackberry	Fields and roadsides
<i>Alnus rugosa</i>	Alder	Low pastures, etc.

Herbs

<i>Andropogon Virginicus</i>	Broom-sedge	Old fields
<i>Senecio Smallii</i>		Roadsides, etc.
<i>Anthemis Cotula</i>	Dog-fennel	Roadsides, etc.
<i>Rumex hastatulus</i>		Sandy fields, etc.
<i>Linaria Canadensis</i>		Sandy fields, etc.
<i>Juncus effusus</i>	(Rush)	Low pastures
<i>Helenium tenuifolium</i>	Bitter-weed	Roadsides, etc.
<i>Oenothera biennis</i>	(Evening primrose)	Old fields, etc.
<i>Typha latifolia</i>	Cat-tail	Wet places
<i>Cicuta Curtissii</i>		Wet places
<i>Eupatorium capillifolium</i>	(Dog-fennel)	Pastures, etc.
<i>Geranium Carolinianum</i>		Roadsides, etc.
<i>Sarothra gentianoides</i>		Sandy fields, etc.
<i>Cyperus pseudovegetus</i>		Damp places
<i>Valerianella radiata</i>		Roadsides, etc.
<i>Plantago Virginica</i>	(Plantain)	Fields and roadsides
<i>Gnaphalium purpureum</i>		Roadsides, etc.
<i>Specularia perfoliata</i>	(Venus's looking-glass)	Roadsides, etc.
<i>Raimannia laciniata</i>	(Evening primrose)	Fields and roadsides
<i>Perilla frutescens</i>		Roadsides, etc.
<i>Krigia Virginica</i>		Fields and roadsides

<i>Plantago lanceolata</i>	(Plaintain)	Roadsides, etc.
<i>Trifolium Carolinianum</i>	(Clover)	Roadsides, etc.

For a weed list for the corresponding part of Georgia see Bull. Torrey Bot. Club, 27:329. 1900.

6 A. Central short-leaf pine belt.

This is the inner edge of the coastal plain, making a belt extending across the state from the northwest corner to a little south of the middle of the eastern border, with an area of about 5,000 square miles. It is a moderately hilly but not particularly rocky region. The soils are mostly sandy loams of various kinds, probably a little below the national average in fertility. Only about one-fourth of the area is under cultivation, but most of the remaining forest has been stripped of its best timber.

My notes on weeds are pretty full for the spring season, but much less so for fall. The months and days represented are as follows: February 1, March 2, April 18, May 8, June 5, July 2, September 3, October 3, November 4, December 1. Total 47 days.

The commonest weeds, "on the face of the returns," are as follows, but the fall-blooming species are inadequately represented.

Larger trees

<i>Pinus Taeda</i>	Short-leaf pine	Old fields, etc.
<i>Diospyros Virginiana</i>	Persimmon	Fields, roadsides, etc.
<i>Melia Azedarach</i>	Chinaberry	Edges of fields
<i>Paulownia tomentosa</i>		Around towns
<i>Papyrius papyrifera</i>	Paper mulberry	Near dwellings

Smaller trees

<i>Salix nigra</i>	Willow	Wet places
<i>Celtis pumila</i>	Hackberry	Fields and roadsides

Vines

<i>Lonicera Japonica</i>	Japanese honeysuckle	Roadsides, etc.
<i>Tecoma radicans</i>	(Trumpet-vine)	Fields and roadsides
<i>Rubus trivialis</i>	Dewberry	Fields and roadsides
<i>Smilax glauca</i>		Dry old fields
<i>Vitis rotundifolia</i>	Muscadine	Roadsides, etc.

Shrubs

<i>Prunus angustifolia</i>	Wild plum	Fields and roadsides
<i>Sambucus Canadensis</i>	Elder	Damp places
<i>Alnus rugosa</i>	Alder	Along streams in pastures, etc.
<i>Rhus glabra</i>	Sumac	Roadsides, etc.
<i>Rhus copallina</i>	Sumac	Roadsides, etc.
<i>Sassafras variifolium</i>	Sassafras	Fields and roadsides
<i>Rosa bracteata</i>	(White) rose	Roadsides, etc.
<i>Rubus argutus</i> (?)	Blackberry	Roadsides, etc.
<i>Callicarpa Americana</i>	French mulberry	Thickets, etc.
<i>Cephalanthus occidentalis</i>	(Elbow-bush)	Wet places

Herbs

<i>Ambrosia artemisiifolia</i>	Ragweed	Fields and roadsides
<i>Helenium tenuifolium</i>	Bitter-weed	Roadsides and pastures
<i>Andropogon Virginicus</i>	Broom-sedge	Old fields
<i>Syntherisma sanguinale</i>	Crab-grass	Fields
<i>Leptilon Canadense</i>	Horse-weed	Old fields, etc.
<i>Rumex hastatulus</i>	(Sorrel)	Sandy fields
<i>Juncus effusus</i>	(Rush)	Damp pastures
<i>Raimannia laciniata</i>	(Evening primrose)	Fields and roadsides
<i>Geranium Carolinianum</i>		Roadsides, etc.
<i>Plantago Virginica</i>	(Plantain)	Fields and roadsides
<i>Diodia teres</i>		Dry fields and roadsides
<i>Linaria Canadensis</i>	(Toad-flax)	Sandy fields, etc.
<i>Sorghum Halepense</i>	Johnson grass	Fields and roadsides
<i>Scirpus carinatus</i>		Damp fields and roadsides
<i>Lepidium Virginicum</i>	Pepper-grass	Roadsides, etc.
<i>Veronica peregrina</i>		Damp fields, etc.
<i>Nymphaea advena</i>	(Bonnets)	Pools along railroads
<i>Cicuta Curtissii</i>		Damp places
<i>Specularia perfoliata</i> ^a		Roadsides, etc.
<i>Daucus pusillus</i>		Roadsides, etc.
<i>Oxalis stricta</i> (?)	Sorrel	Roadsides, etc.
<i>Serinea oppositifolia</i>		Damp fields
<i>Verbascum Thapsus</i>	Mullein	Dry pastures, etc.
<i>Chaerophyllum</i> sp.	(Chervil)	Roadsides, etc.
<i>Gnaphalium purpureum</i>		Roadsides, etc.
<i>Juncus acuminatus</i>	(Rush)	Roadside ditches, etc.
<i>Eupatorium capillifolium</i>	(Dog-fennel)	Pastures, etc.
<i>Oxalis violacea</i>	Sorrel	Roadsides, etc.
<i>Juncus bufonius</i>	(Rush)	Roadside ditches, etc.
<i>Briza minor</i>	(A grass)	Damp roadsides
<i>Erigeron ramosus</i>	(Flea-bane)	Fields and roadsides

^aProbably two species. See catalogue.

6 B. Central long-leaf pine hills.

This is an elevated region of poor sandy soil, partly surrounded by the short-leaf pine belt just discussed. Probably not more than one-tenth of it is under cultivation, and weeds are not very numerous. The following list, evidently incomplete, is based on one day's work in April, two in June, two in July and one in September.

Trees

<i>Disopyros Virginiana</i>	Persimmon	Roadsides, etc.
<i>Pinus Taeda</i>	Short-leaf pine	Old fields
<i>Melia Azedarach</i>	Chinaberry	Roadsides, etc.

Vines

<i>Vitis rotundifolia</i>	Muscadine	Roadsides, etc.
<i>Smilax glauca</i>		Old fields, etc.
<i>Lonicera Japonica</i>	Japanese honeysuckle	Roadsides, etc.

Shrubs

<i>Rhus glabra</i>	Sumac	Roadsides, etc.
<i>Rubus cuneifolius</i>	Blackberry	Roadsides, etc.
<i>Sambucus Canadensis</i>	Elder	Damp places
<i>Rhus copallina</i>	Sumac	Roadsides, etc.

Herbs

<i>Helenium tenuifolium</i>	Bitter-weed	Roadsides, etc.
<i>Diodia teres</i>		Dry roadsides
<i>Leptilon Canadense</i>	Horse-weed	Old fields, etc.
<i>Isopappus divaricatus</i>		Old fields
<i>Stenophyllus barbatus</i>		Sandy fields
<i>Apocynum cannabinum</i>	(Dogbane)	Along railroads, etc.
<i>Verbascum Thapsus</i>	Mullein	Roadsides and pastures
<i>Acanthospermum australe</i>		Sandy roadsides
<i>Lespedeza striata</i>	Japanese clover	Roadsides, etc.
<i>Verbena tenuisecta</i>		Roadsides, etc.
<i>Rhynchospora glomerata</i>		
<i>paniculata</i>		Damp sandy places
<i>Solanum Carolinense</i>		Roadsides, etc.
<i>Capriola Dactylon</i>	Bermuda grass	Roadsides, etc.
<i>Lepidium Virginicum</i>	Pepper-grass	Roadsides, etc.
<i>Passiflora incarnata</i>	May-pop	Roadsides, etc.
<i>Scirpus Eriophorum</i>	(Bulrush)	Wet places
<i>Vernonia altissima</i> (?)	(Ironweed)	Low pastures
<i>Phytolacca Americana</i>	Poke-berry	Roadsides, etc.
<i>Chamaesyce supina</i>		Roadsides, etc.
<i>Juncus validus</i> (?)	(Rush)	Ditches, etc.

6 C. The Eutaw belt.

This lies just south, or coastward, of the short-leaf and long-leaf pine belts, and differs from them in having somewhat richer soil; a sort of transition to the fertile black belt, to be treated next. Parts of it have been cultivated for over 100 years, but many fields have been abandoned at one time or another, and the present cultivated area is estimated about three-eighths of the total.

My notes on the weeds of this region are ample for the spring flora, but less so for summer and fall. The months and days represented are: February 1, March 4, April 13, May 6, June 6, July 3, August 3, September 5, October 1. Total 42 days.

The commonest weeds, according to this count, are as follows:

Larger trees

<i>Melia Azedarach</i>	Chinaberry	Edges of fields
<i>Pinus Taeda</i>	Short-leaf pine	Old fields
<i>Diospyros Virginiana</i>	Persimmon	Old fields, etc.
<i>Papyrus papyrifera</i>	Paper mulberry	In and around towns
<i>Pinus echinata</i>	Short-leaf pine	Old fields
<i>Liquidambar Styraciflua</i>	Sweet gum	Old fields
<i>Ailanthus altissima</i>	(Tree of heaven)	Near dwellings

Smaller trees

<i>Salix nigra</i>	Willow	Low grounds
<i>Albizia Julibrissin</i>	Mimosa	Roadsides in woods
<i>Robinia Pseudo-acacia</i>	Black locust	Roadsides, etc.
<i>Celtis pumila</i>	Hackberry	Old fields, etc.
<i>Crataegus Michauxii</i>	Red haw	Sandy old fields

Vines

<i>Lonicera Japonica</i>	Japanese honeysuckle	Roadsides, etc.
<i>Rubus trivialis</i>	Dewberry	Fields and roadsides
<i>Tecoma radicans</i>	"Cow-itch"	Fields and roadsides
<i>Rosa laevigata</i>	Cherokee rose	Roadsides, etc.
<i>Smilax glauca</i>		Sandy old fields
<i>Vitis rotundifolia</i>	Muscadine	Roadsides and thickets
<i>Brunnichia cirrhosa</i>		Damp thickets
<i>Berchemia scandens</i>	Rattan vine	Pastures near swamps

Shrubs

<i>Prunus angustifolia</i>	Wild plum	Fields and roadsides
<i>Sassafras variifolium</i>	Sassafras	Fields and roadsides
<i>Sambucus Canadensis</i>	Elder	Damp places

<i>Rubus argutus</i> (?)	Blackberry	Fields and roadsides
<i>Rhus copallina</i>	Sumac	Roadsides, etc.
<i>Rosa bracteata</i>	(White) rose	Roadsides, etc.
<i>Alnus rugosa</i>	Alder	Wet places in pastures
<i>Diospyros Virginiana</i>	Persimmon (bushes)	Old fields, etc.
<i>Callicarpa Americana</i>	French mulberry	Thickets, etc.

Herbs

<i>Helenium tenuifolium</i>	Bitter-weed	Roadsides, etc.
<i>Geranium Carolinianum</i>		Roadsides, etc.
<i>Gnaphalium purpureum</i>		Roadsides, etc.
<i>Rumex hastatulus</i>	(Sorrel)	Sandy fields
<i>Ambrosia artemisiifolia</i>	Ragweed	Roadsides, etc.
<i>Leptilon Canadense</i>	Horse-weed	Fields
<i>Oxalis stricta</i> (?)	Sorrel	Roadsides, etc.
<i>Limaria Canadensis</i>	(Toad-flax)	Sandy fields, etc.
<i>Plantago Virginica</i>	(Plantain)	Fields and roadsides
<i>Hartmannia speciosa</i>	"Primrose"	Roadsides, etc.
<i>Raimannia laciniata</i>	(Evening primrose)	Fields and roadsides
<i>Capriola Dactylon</i>	Bermuda grass	Roadsides, etc.
<i>Sorghum Halepense</i>	Johnson grass	Roadsides, etc.
<i>Andropogon Virginicus</i>	Broom-sedge	Old fields
<i>Syntherisma sanguinale</i>	Crab-grass	Fields
<i>Scirpus carinatus</i>		Damp fields, etc.
<i>Specularia perfoliata</i> ^a	(Venus's looking-glass)	Roadsides, etc.
<i>Lepidium Virginicum</i>	Pepper-grass	Roadsides, etc.
<i>Erigeron ramosus</i>	(Flea-bane)	Fields and roadsides
<i>Isopappus divaricatus</i>		Sandy fields, etc.
<i>Cyperus rotundus</i>	Nut-grass	Fields and roadsides
<i>Chaerophyllum sp.</i>	(Chervil)	Roadsides, etc.
<i>Sitilias Caroliniana</i>		Roadsides, etc.
<i>Lespedeza striata</i>	Japanese clover	Fields and roadsides
<i>Stellaria media</i>	Chickweed	Around towns
<i>Eupatorium capillifolium</i>	(Dog-fennel)	Roadsides, etc.
<i>Trifolium Carolinianum</i>	Clover	Roadsides, etc.
<i>Trifolium repens</i>	White (Dutch) clover	Roadsides, etc.
<i>Diodia teres</i>		Fields and roadsides
<i>Axonopus compressus</i>	Carpet-grass	Pastures, etc.
<i>Chamaecrista fasciculata</i>	Partridge-pea	Old fields, etc.
<i>Cerastium viscosum</i> (?)		Roadsides, etc.
<i>Dichondra Carolinensis</i>		Lawns, etc.
<i>Anthemis Cotula</i>	Dog-fennel	Roadsides, etc.
<i>Festuca octoflora</i>	(A grass)	Roadsides, etc.
<i>Ambrosia trifida</i>	(Giant ragweed)	Damp rich soils
<i>Plantago aristata</i>	(Plantain)	Dry roadsides
<i>Juncus effusus</i>	(Rush)	Damp pastures, etc.

^aProbably two species. See catalogue.

7. The black belt.

This is a belt south of the center of the state, with a maximum width of about 25 miles, and an area of about 4,300 square miles. It is underlaid by chalk, which makes very fertile soil where it approaches the surface, but there are many strips and patches of sandy soil, especially eastward, where the proportion of summer rain is greatest.

This is, or has been, the most fertile region in the state, with the possible exception of the Tennessee Valley. Only about one-fifth of the trees are evergreen, and nearly half the area is under cultivation. Farming was well under way over a century ago, and there was more cultivated land a generation ago, before the arrival of the boll-weevil, than there is now. A considerable proportion, perhaps as much as one-tenth, of the area was originally treeless, and many patches of essentially undisturbed prairie can still be found. Prairie areas cultivated and abandoned soon develop a wonderful variety of weeds, but the native vegetation tends to re-establish itself there if given sufficient time.

This might be called the weed paradise of Alabama, on account of so much of it having been cultivated a long time. Several of the abundant weeds have very showy flowers, especially those that bloom in early summer. But the total number of species of weeds is very indefinite, because here, as elsewhere, there are many more rare species than common ones, and there may be many as yet undetected, and more coming in every year.

My notes on weeds have been made every month in the year, with the number of days represented as follows: January 1, February 3, March 2, April 10, May 5, June 20, July 4, August 3, September 9, October 4, November 1, December 3. Total 66. But the list is not yet truly representative, the spring and early summer weeds having been noted oftener than those of late summer and fall.

With the limitation just mentioned, the commonest weeds seem to be as follows:

WEEDS OF ALABAMA

Larger trees

<i>Populus deltoides</i>	Cottonwood	Along ditches, etc.
<i>Pinus Taeda</i>	Short-leaf (loblolly) pine	Old fields
<i>Juniperus Virginiana</i>	(Red) cedar	Roadsides, etc.
<i>Melia Azedarach</i>	Chinaberry	Roadsides, etc.
<i>Pinus echinata</i>	Short-leaf (rosemary) pine	Old fields
<i>Gleditsia triacanthos</i>	Honey locust	Roadsides
<i>Liquidambar Styraciflua</i>	Sweet gum	Old fields, etc.
<i>Diospyros Virginiana</i>	Persimmon	Old fields, etc.
<i>Celtis Mississippensis</i>	Hackberry	Along ditches, etc.

Smaller trees

<i>Salix nigra</i>	Willow	Along ditches, etc.
<i>Toxylon pomiferum</i>	Osage orange	Roadsides, etc.
<i>Crataegus spathulata</i>	(Red) haw	Roadsides, etc.
<i>Xanthoxylum Clava-Herculis</i>	(Pillenterry)	Roadsides
<i>Malus angustifolia</i>	Crab-apple	Roadsides, etc.
<i>Cercis Canadensis</i>	Redbud	Roadsides
<i>Acer Negundo</i>	Box elder	Along ditches, etc.

Vines

<i>Tecoma radicans</i>	("Cow-itch")	Fields and roadsides
<i>Berchemia scandens</i>	Rattan vine	Thickets, etc.
<i>Rubus trivialis</i>	Dewberry	Fields and roadsides
<i>Ampelopsis arborea</i>		Thickets, etc.
<i>Smilax glauca</i>		Dry thickets
<i>Lonicera Japonica</i>	Japanese honeysuckle	Roadsides, etc.
<i>Brunnichia cirrhosa</i>		Thickets, etc.
<i>Rhus radicans</i>	Poison ivy	Roadsides, etc.
<i>Ampelopsis cordata</i>		Roadsides, etc.

Shrubs

<i>Prunus angustifolia</i>	Wild plum	Fields and roadsides
<i>Sabal minor</i>	Palmetto	Low pastures
<i>Rosa bracteata</i>	(White) rose	Pastures, etc.
<i>Sassafras variifolium</i>	Sassafras	Fields and roadsides
<i>Cornus asperifolia</i>		Chalky roadsides
<i>Rhus glabra</i>	Sumac	Roadsides, etc.
<i>Sambucus Canadensis</i>	Elder	Damp places
<i>Rosa setigera</i>	(Wild rose)	Chalky roadsides
<i>Rubus argutus</i> (?)	Blackberry	Roadsides, etc.
<i>Rhamnus lanceolata</i>		Chalky roadsides
<i>Ilex decidua</i>		Roadsides, etc.

Rhus copallina
Rubus cuneifolius

Sumac
 Blackberry

Roadsides, etc.
 Sandy roadsides

Herbs

<i>Erigeron ramosus</i>		Dry fields, etc.
<i>Sorghum Halepense</i>	Johnson grass	Roadsides, railroads, etc.
<i>Melilotus alba</i>	Sweet clover	Chalky roadsides, etc.
<i>Hartmannia speciosa</i>	"Primrose"	Fields and roadsides
<i>Helenium tenuifolium</i>	Bitter-weed	Roadsides and pastures
<i>Andropogon Virginicus</i>	Broom-sedge	Old fields
<i>Dracopis amplexicaulis</i>		Chalky fields, etc.
<i>Ratibida pinnata</i>		Chalky fields, etc.
<i>Ambrosia trifida</i>	(Giant ragweed)	Rich low grounds
<i>Monarda citriodora</i>	(Mint)	Chalky pastures
<i>Rumex hastatulus</i>		Sandy fields
<i>Anthemis Cotula</i>	Dog-fennel	Roadsides and pastures
<i>Syntherisma sanguinale</i>	Crab grass	Sandy fields
<i>Sesbania Emerus</i>		Rich low grounds
<i>Trifolium repens</i>	White (Dutch) clover	Pastures, etc.
<i>Ambrosia artemisiifolia</i>	Ragweed	Roadsides, etc.
<i>Xanthium Americanum</i>	Cocklebur	Rich fields
<i>Sitilias Caroliniana</i>		Roadsides, etc.
<i>Eupatorium serotinum</i>		Low pastures
<i>Lythrum lanceolatum</i>		Calcareous low grounds
<i>Plantago aristata</i>	(Plantain)	Dry roadsides, etc.
<i>Eupatorium capillifolium</i>	Dog-fennel	Pastures, etc.
<i>Capriola Dactylon</i>	Bermuda grass	Roadsides, etc.
<i>Daucus pusillus</i>		Roadsides, etc.
<i>Andropogon glomeratus</i>		Damp places
<i>Plantago Virginica</i>	(Plantain)	Fields and roadsides
<i>Juncus effusus</i>	(Rush)	Damp places
<i>Geranium Carolinianum</i>		Roadsides
<i>Mesadenia tuberosa</i>		Chalky fields
<i>Acuan Illinoense</i>		Chalky roadsides
<i>Isopappus divaricatus</i>		Sandy fields
<i>Erianthus sp.</i>	(Plume grass)	Clearings
<i>Tripsacum dactyloides</i>	(A grass)	Damp places
<i>Melilotus Indica</i>	(Yellow sweet clover)	Chalky roadsides, etc.
<i>Hordeum pusillum</i>	(A grass)	Dry roadsides
<i>Chamaecrista fasciculata</i>	Partridge-pea	Old fields, etc.
<i>Croton capitatus</i>		Dry roadsides, etc.
<i>Lespedeza striata</i>	Japanese clover	Roadsides, etc.
<i>Raimannia laciniata</i>	(Evening primrose)	Roadsides, etc.
<i>Rudbeckia hirta</i>	Black-eyed Susan	Dry fields and roadsides

For a list of herbs, mostly weeds, for the corresponding portion of Mississippi see Bull. Torrey Bot. Club, 40:383. 1913.

8. The blue marl region.

This borders the black belt on the south and east, and is underlain by calcareous marl, which, however, is mostly covered up by sandy soils. It was extensively cultivated long ago, and at the beginning of the present century had nearly as much cleared land proportionately as the black belt; but much of the farm land has been abandoned since then, making ideal conditions for weeds.

My weed notes, taken largely from trains, represent the following months: March 2, April 5, May 1, June 5, July 2, September 4, November 1, December 1. Total 21 days.

The commonest weeds seem to be as follows:

Larger trees

<i>Pinus Taeda</i>	Short-leaf (loblolly) pine	Old fields
<i>Pinus echinata</i>	Short-leaf (rosemary) pine	Old fields
<i>Populus deltoides</i>	Cottonwood	Ditches, etc.
<i>Melia Azedarach</i>	Chinaberry	Roadsides, etc.
<i>Diospyros Virginiana</i>	Persimmon	Old fields, etc.
<i>Liquidambar Styraciflua</i>	Sweet gum	Old fields, etc.
<i>Juniperus Virginiana</i>	Cedar	Roadsides, etc.

Smaller trees

<i>Salix nigra</i>	Willow	Low grounds
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Vines

<i>Lonicera Japonica</i>	Japanese honeysuckle	Roadsides, etc.
<i>Tecoma radicans</i>	"Cow-itch"	Roadsides, etc.
<i>Smilax lanceolata</i>		Roadsides, etc.
<i>Lonicera sempervirens</i>	(Wild) honeysuckle	Roadsides, etc.
<i>Rubus trivialis</i>	Dewberry	Fields and roadsides
<i>Smilax glauca</i>		Dry fields, etc.

Shrubs

<i>Prunus angustifolia</i>	Wild plum	Fields and roadsides
<i>Sassafras variifolium</i>	Sassafras	Fields and roadsides
<i>Sambucus Canadensis</i>	Elder	Damp places, etc.
<i>Rubus cuneifolius</i>	Blackberry	Sandy fields and roadsides
<i>Alnus rugosa</i>	Alder	Low grounds
<i>Sabal minor</i>	Palmetto	Low pastures
<i>Callicarpa Americana</i>	French mulberry	Second-growth woods
<i>Rhus glabra</i>	Sumac	Roadsides, etc.

<i>Rhus copallina</i>	Sumac	Roadsides, etc.
<i>Diospyros Virginiana</i>	Persimmon (bushes)	Fields and pastures
<i>Rosa bracteata</i>	(White) rose	Pastures, etc.

Herbs

<i>Andropogon Virginicus</i>	Broom-sedge	Old fields
<i>Helenium tenuifolium</i>	Bitter-weed	Roadsides, etc.
<i>Rumex hastatulus</i>		Sandy fields
<i>Eupatorium capillifolium</i>	Dog-fennel	Old fields, etc.
<i>Ambrosia artemisiifolia</i>	Ragweed	Roadsides, etc.
<i>Leptilon Canadense</i>	Horse-weed	Fields
<i>Melilotus alba</i>	Sweet clover	Roadsides, etc.
<i>Ambrosia trifida</i>	(Giant ragweed)	Rich damp soils
<i>Sorghum Halepense</i>	Johnson grass	Roadsides, railroads, etc.
<i>Senecio glabellus</i>		Damp fields, etc.
<i>Xanthium Americanum</i>	Cocklebur	Rich fields
<i>Erianthus sp.</i>	(Plume grass)	Clearings, etc.
<i>Glottidium vesicarium</i>		Rich damp soils
<i>Typha latifolia</i>	Cat-tail	Ditches, etc.
<i>Erigeron ramosus</i>		Dry fields, etc.
<i>Syntherisma sanguinale</i>	Crab-grass	Fields, etc.
<i>Scirpus Eriophorum</i>	(Bulrush)	Wet places
<i>Gnaphalium purpureum</i>		Roadsides, etc.
<i>Prunella vulgaris</i>		Pastures, etc.
<i>Sarothra gentianoides</i>		Sandy old fields
<i>Medicago Arabica</i>	Bur clover	Roadsides, etc.
<i>Agalinis fasciculata</i>		Old fields
<i>Sitilias Caroliniana</i>		Roadsides, etc.
<i>Ratibida pinnata</i>		Chalky places
<i>Chaerophyllum sp.</i>		Roadsides
<i>Specularia perfoliata</i> ^o	(Venus's looking-glass)	Roadsides

9. The post-oak flatwoods

This is a belt six or eight miles wide, bordering the black belt on the south in the western half of the state. Its soils are mostly clayey and deficient in lime, but there are also some sandy streaks, which are preferred by farmers because they are easier to plow than the clay. Probably not over one-fourth of it is cultivated, and for that reason, and also on account of its small area, weed species are not very numerous.

My notes on weeds have been taken on seven different days, as follows: February 2, April 1, July 1, September 2, October 1.

^oPerhaps more than one species. See catalogue.

The commonest weeds seem to be as follows:

Trees

<i>Populus deltoides</i>	Cottonwood	Along ditches, etc.
<i>Diospyros Virginiana</i>	Persimmon	Old fields, etc.
<i>Pinus Taeda</i>	Short-leaf pine	Old fields
<i>Pinus echinata</i>	Short-leaf pine	Old fields
<i>Liquidambar Styraciflua</i>	Sweet gum	Old fields

Vines

<i>Rubus trivialis</i>	Dewberry	Fields and roadsides
<i>Lonicera Japonica</i>	Japanese honeysuckle	Roadsides

Shrubs

<i>Prunus angustifolia</i>	Wild plum	Fields and roadsides
<i>Sambucus Canadensis</i>	Elder	Damp places
<i>Aesculus Pavia</i>	(Red) Buckeye	Roadsides, etc.
<i>Sassafras variifolium</i>		Fields and roadsides
<i>Rubus argutus</i> (?)	Blackberry	Roadsides, etc.

Herbs

<i>Andropogon Virginicus</i>	Broom-sedge	Old fields
<i>Scirpus carinatus</i>		Damp fields
<i>Ambrosia trifida</i>	(Giant ragweed)	Rich damp soils
<i>Melilotus alba</i>	Sweet clover	Rich roadsides
<i>Anthemis Cotula</i>	Dog-fennel	Roadsides, etc.
<i>Cirsium horridulum</i>	Thistle	Pastures, etc.
<i>Plantago Virginica</i>	(Plantain)	Roadsides, etc.
<i>Senecio glabellus</i>		Damp fields
<i>Chamaecrista</i> sp.	Partridge-pea	Old fields, etc.
<i>Valerianella radiata</i>		Roadsides, etc.
<i>Erianthus</i> sp.	(Plume grass)	Clearings
<i>Ipomoea pandurata</i>	Wild potato	Roadsides, etc.
<i>Sesbania Emerus</i>		Damp rich soils
<i>Geranium Carolinianum</i>		Roadsides, etc.
<i>Specularia perfoliata</i> (?)		Roadsides, etc.
<i>Linaria Canadensis</i>		Sandy fields,
<i>Serineia oppositifolia</i>		Damp fields
<i>Hartmannia speciosa</i>	"Primrose"	Roadsides, etc.
<i>Raimannia laciniata</i>	(Evening primrose)	Fields and roadsides
<i>Sorghum Halepense</i>	Johnson grass	Roadsides, etc.
<i>Typha latifolia</i>	Cat-tail	Ditches, etc.
<i>Helenium tenuifolium</i>	Bitter-weed	Roadsides, etc.

10 E. Southern red hills, eastern division.

This covers about 3,600 square miles in the southeastern quarter of the state. The topography is moderately hilly, with sandy or loamy soils, and usually reddish subsoils. There was not much farming here until commercial fertilizers became available, after the Civil War, but now nearly half the land is cleared.

About half my weed notes have been taken in July, and they therefore do not do justice to either the spring or fall weeds. The commonest weeds noted are as follows:

Larger trees

<i>Diospyros Virginiana</i>	Persimmon	Old fields, etc.
<i>Melia Azedarach</i>	Chinaberry	Edges of fields

Smaller trees

<i>Albizia Julibrissin</i>	Mimosa	Roadsides, etc.
<i>Celtis pumila</i>	Hackberry	Old fields, etc.

Vines

<i>Vitis rotundifolia</i>	Muscadine	Roadsides, etc.
<i>Gelsemium sempervirens</i>	Yellow jessamine	Roadsides, etc.
<i>Vitis aestivalis</i>	Wild grape	Roadsides, etc.
<i>Smilax glauca</i>		Dry old fields, etc.
<i>Smilax lanceolata</i>		Roadsides, etc.
<i>Lonicera Japonica</i>	Japanese honeysuckle	Roadsides, etc.
<i>Tecoma radicans</i>	"Cow-itch"	Roadsides, etc.

Shrubs

<i>Prunus angustifolia</i>	Wild plum	Fields and roadsides
<i>Rubus cuneifolius</i>	Blackberry	Sandy roadsides, etc.
<i>Sassafras variifolium</i>	Sassafras	Fields and roadsides
<i>Sambucus Canadensis</i>	Elder	Damp places
<i>Callicarpa Americana</i>	French mulberry	Thickets, etc.
<i>Diospyros Virginiana</i>	Persimmon (bushes)	Fields, etc.
<i>Rhus copallina</i>	Sumac	Roadsides, etc.

Herbs

<i>Helenium tenuifolium</i>	Bitter-weed	Roadsides, etc.
<i>Eupatorium compositifolium</i>	Dog-fennel	Dry roadsides, etc.
<i>Richardia scabra</i>	"Florida pusley"	Sandy fields
<i>Leptilon Canadense</i>	Horse-weed	Fields
<i>Ambrosia artemisiifolia</i>	Rag-weed	Roadsides, etc.
<i>Diodia teres</i>		Dry roadsides, etc.
<i>Andropogon Virginicus</i>	Broom-sedge	Old fields
<i>Acanthospermum australe</i>		Roadsides
<i>Kuhnisteria pinnata</i>	Summer farewell	Sandy fields

<i>Capriola Dactylon</i>	Bermuda grass	Roadsides, etc.
<i>Sporobolus Poirerii</i>	(Smut grass)	Roadsides, etc.
<i>Passiflora incarnata</i>	May-pop	Fields and roadsides
<i>Xanthium Americanum</i>	Cocklebur	Fields
<i>Isopappus divaricatus</i>		Sandy fields
<i>Lepidium Virginicum</i>	Pepper-grass	Roadsides, etc.
<i>Dactyloctenium Aegyptium</i>		
<i>Syntherisma sanguinale</i>	Crow-foot grass	Sandy fields
<i>Datura Tatula</i>	Crab grass	Fields
<i>Stenophyllus barbatus</i>	Jimson weed	Around barns, etc.
<i>Eupatorium capillifolium</i>	("Water-grass")	Sandy fields
<i>Ipomoea pandurata</i>	Dog-fennel	Roadsides, etc.
<i>Erigeron ramosus</i>	Wild potato	Roadsides, etc.
<i>Axonopus compressus</i>		Roadsides, etc.
<i>Paspalum dilatatum</i>	Carpet-grass	Pastures, etc.
<i>Sida rhombifolia</i>	Dallis grass	Pastures, etc.
<i>Plantago aristata</i>	("Tea-weed")	Roadsides, etc.
<i>Lespedeza striata</i>	(Plantain)	Dry roadsides
<i>Polypremum procumbens</i>	Japanese clover	Roadsides, etc.
<i>Juncus effusus</i>		Old fields, etc.
<i>Boerhaavia erecta</i>	(Rush)	Low pastures
		Along railroads, etc.

10 W. Southern red hills, western division and

11. The lime hills.

These two regions are combined here, as they were in Monograph 10, because they are adjoining and rather similar, but they could be separated if my weed notes were sufficiently complete, and some differences shown. Their combined area is about 5,700 square miles, in the southwestern quarter of the state. They include quite a variety of topography and soil, but generally speaking, the topography is moderately hilly and the soil moderately fertile. Farming began on a considerable scale before the Civil War, but the amount of cultivated land apparently has never exceeded 30 per cent of the total area.

My weed notes were taken on 35 different days, distributed by months as follows: April 11, May 5, June 4, July 8, August 2, September 1, October 4. This ought to give a pretty fair representation.

Larger trees

<i>Melia Azedarach</i>	Chinaberry	Edges of fields
<i>Diospyros Virginiana</i>	Persimmon	Old fields, etc.

<i>Pinus Taeda</i>	Short-leaf (loblolly) pine	Old fields
<i>Pinus echinata</i>	Short-leaf (rosemary) pine	Old fields
<i>Populus deltoides</i>	Cottonwood	Along ditches, etc.
<i>Liquidambar Styraciflua</i>	Sweet gum	Old fields, etc.

Smaller trees

<i>Salix nigra</i>	Willow	Low grounds
<i>Albizzia Julibrissin</i>	Mimosa	Roadsides

Vines

<i>Rubus trivialis</i>	Dewberry	Fields and roadsides
<i>Lonicera Japonica</i>	Japanese honeysuckle	Roadsides, etc.
<i>Tecoma radicans</i>	"Cow-itch"	Fields and roadsides
<i>Brunnichia cirrhosa</i>		Low thickets
<i>Vitis rotundifolia</i>	Muscadine	Roadsides, etc.
<i>Ampelopsis arborea</i>		Low thickets
<i>Parthenocissus quinquefolia</i>	Virginia creeper	Thickets, etc.
<i>Smilax glauca</i>		Old fields
<i>Berchemia scandens</i>	Rattan vine	Low thickets
<i>Rhus radicans</i>	Poison ivy	Low thickets

Shrubs

<i>Prunus angustifolia</i>	Wild plum	Fields and roadsides
<i>Rubus argutus</i> (?)	Blackberry	Roadsides, etc.
<i>Sassafras variifolium</i>	Sassafras	Fields and roadsides
<i>Rhus glabra</i>	Sumac	Roadsides, etc.
<i>Rhus copallina</i>	Sumac	Roadsides, etc.
<i>Callicarpa Americana</i>	French mulberry	Thickets
<i>Rubus cuneifolius</i>	Blackberry	Sandy roadsides
<i>Alnus rugosa</i>	Alder	Low pastures, etc.
<i>Diospyros Virginiana</i>	Persimmon (bushes)	Fields, etc.
<i>Sambucus Canadensis</i>	Elder	Damp places

Herbs

<i>Helenium tenuifolium</i>	Bitter-weed	Roadsides, etc.
<i>Axonopus compressus</i>	Carpet-grass	Pastures, etc.
<i>Gnaphalium purpureum</i>		Roadsides, etc.
<i>Andropogon Virginicus</i>	Broom-sedge	Old fields
<i>Scirpus carinatus</i>		Damp fields, etc.
<i>Soliva sessilis</i>		Around towns
<i>Plantago Virginica</i>	(Plantain)	Fields and roadsides
<i>Ambrosia artemisiifolia</i>	Rag-weed	Roadsides, etc.
<i>Festuca octoflora</i>	(A grass)	Roadsides, etc.
<i>Raimannia laciniata</i>	(Evening primrose)	Fields and roadsides
<i>Geranium Carolinianum</i>		Roadsides, etc.
<i>Rumex hastatulus</i>	(Sorrel)	Sandy fields

<i>Sitilias Caroliniana</i>		Roadsides, etc.
<i>Lespedeza striata</i>	Japanese clover	Roadsides, etc.
<i>Eupatorium capillifolium</i>	Dog-fennel	Roadsides, etc.
<i>Senecio glabellus</i>		Damp fields, etc.
<i>Hartmannia speciosa</i>	"Primrose"	Roadsides, etc.
<i>Trifolium Carolinianum</i>	(Clover)	Roadsides, etc.
<i>Syntherisma sanguinale</i>	Crab grass	Fields
<i>Eupatorium serotinum</i>		Low pastures
<i>Linaria Canadensis</i>	(Toad-flax)	Sandy fields, etc.
<i>Oxalis stricta</i> (?)	Sorrel	Roadsides, etc.
<i>Facelis retusa</i>		Pastures, etc.
<i>Specularia perfoliata</i>		Roadsides, etc.
<i>Anthemis Cotula</i>	Dog-fennel	Roadsides, etc.
<i>Ambrosia trifida</i>	(Giant rag-weed)	Damp rich soils
<i>Spermolepis</i> sp.		Sandy soils
<i>Juncus effusus</i>	(Rush)	Ditches, etc.
<i>Erigeron ramosus</i>		Fields and roadsides
<i>Richardia scabra</i>	Florida pusley	Sandy fields
<i>Ranunculus parviflorus</i>		Around towns
<i>Lepidium Virginicum</i>	Pepper-grass	Roadsides, etc.
<i>Solanum Carolinense</i>		Roadsides, etc.
<i>Leptilon Canadense</i>	Horse-weed	Fields
<i>Xanthium Americanum</i>	Cocklebur	Fields
<i>Daucus pusillus</i>		Roadsides, etc.
<i>Eupatorium compositifolium</i>		
	Dog-fennel	Dry roadsides
<i>Vernonia altissima</i> (?)	(Ironweed)	Low pastures
<i>Juncus macer</i>	(Rush)	Along paths, etc.

12. The lime-sink region.

This covers about 1,200 square miles in the southeastern corner of the state, and extends into Georgia and Florida. In Alabama it is often called "the wire-grass" section, but that is not a very appropriate designation, for it has much less wire-grass than the wire-grass country of South Georgia, which is a different region.

The topography is comparatively level, with many shallow ponds. The soils are prevailingly sandy, and rather poor, and there was very little farming until fifty or sixty years ago, when the first railroads were built, making commercial fertilizers readily available. But now the cultivated land amounts to more than half the total, or more even than in the fertile black belt and Tennessee Valley.

Weeds are probably not as numerous now as they will be in a few more decades, but my notes, taken on one day in May, two in

June, three in July, and one in December, are hardly sufficient to do them justice.

The following seem to be the commonest species:

Trees

<i>Diospyros Virginiana</i>	Persimmon	Roadsides, etc.
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Vines

<i>Lonicera Japonica</i>	Japanese honeysuckle	Roadsides
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Shrubs

<i>Rubus cuneifolius</i>	Blackberry	Sandy roadsides
<i>Diospyros Virginiana</i>	Persimmon (bushes)	Old fields, etc.
<i>Prunus angustifolia</i>	Wild plum	Roadsides, etc.
<i>Callicarpa Americana</i>	French mulberry	Roadsides, etc.

Herbs

<i>Helenium tenuifolium</i>	Bitter-weed	Roadsides, etc.
<i>Acanthospermum australe</i>		Roadsides
<i>Ambrosia artemisiifolia</i>	Ragweed	Roadsides, etc.
<i>Erigeron ramosus</i>		Roadsides, etc.
<i>Eupatorium compositifolium</i>	Dog-fennel	Sandy roadsides
<i>Verbena tenuisecta</i>		Roadsides
<i>Plantago aristata</i>	(Plantain)	Roadsides, etc.
<i>Lepidium Virginicum</i>	Pepper-grass	Roadsides, etc.
<i>Lespedeza striata</i>	Japanese clover	Roadsides, etc.
<i>Axonopus compressus</i>	Carpet grass	Roadsides and pastures
<i>Paspalum Urvillei</i>	(A grass)	Roadsides
<i>Diodia teres</i>		Roadsides, etc.
<i>Capriola Dactylon</i>	Bermuda grass	Roadsides, etc.
<i>Sida rhombifolia</i>	("Tea-weed")	Roadsides, etc.
<i>Chamaecrista fasciculata</i>	Partridge-pea	Fields and roadsides
<i>Andropogon Virginicus</i>	Broom-sedge	Old fields
<i>Syntherisma sanguinale</i>	Crab grass	Fields
<i>Richardia scabra</i>	Florida pusley	Sandy fields
<i>Sorghum Halepense</i>	Johnson grass	Roadsides, etc.
<i>Solanum Carolinense</i>		Roadsides, etc.
<i>Oenothera biennis</i>	(Evening primrose)	Fields and roadsides
<i>Daucus pusillus</i>		Roadsides, etc.
<i>Cassia Tora</i>	Coffee-weed	Gardens, etc.
<i>Cassia occidentalis</i>	Coffee-weed	Gardens, etc.
<i>Sitilias Caroliniana</i>		Roadsides, etc.
<i>Sporobolus Poirerii</i>	"Swamp grass"	Roadsides, etc.

13. The southwestern pine hills.

This covers about 5,000 square miles in the southwestern corner of the state. It is moderately hilly toward its inland edge, where there are elevations of about 400 feet, but flattens out southward. The soils are rather sandy, and pretty thoroughly leached by the copious summer rains. Not over 15 per cent of the area seems to have been cultivated yet, but the forests have been pretty thoroughly cut over, and there are also many weeds along railroads, even where there are no farms in sight.

My weed notes have been taken on 24 different days, distributed by months as follows: January 2, April 1, May 5, June 4, July 6, October 2, November 2, December 2. This does not quite do justice to the early spring and late summer weeds, but many of those are still recognizable in late spring, or in fall, and have been noted accordingly.

The commonest weeds seem to be as follows:

Trees

<i>Pinus palustris</i>	Long-leaf pine	Old fields
<i>Pinus Elliottii</i>	Slash pine	Old fields
<i>Melia Azedarach</i>	Chinaberry	Edges of fields

Vines

<i>Lonicera Japonica</i>	Japanese honeysuckle	Roadsides, etc.
<i>Rubus trivialis</i>	Dewberry	Roadsides, etc.

Shrubs

<i>Rubus cuneifolius</i>	Blackberry	Roadsides, etc.
<i>Diospyros Virginiana</i>	Persimmon (bushes)	Old fields
<i>Daubentonia</i> sp.		Roadsides, etc.

Herbs

<i>Axonopus compressus</i>	Carpet-grass	Roadsides, etc.
<i>Eupatorium compositifolium</i>	Dog-fennel	Roadsides, etc.
<i>Helenium tenuifolium</i>	Bitter-weed	Roadsides, etc.
<i>Richardia scabra</i>	Florida pusley	Sandy fields
<i>Andropogon tener</i>	(A grass)	Roadsides, etc.
<i>Syntherisma sanguinale</i>	Crab grass	Fields
<i>Rhynchospora inexpansa</i>	(A sedge)	Wet roadsides
<i>Andropogon Virginicus</i>	Broom-sedge	Old fields

<i>Euthamia tenuifolia</i>		Roadsides, etc.
<i>Scirpus Eriophorum</i>	(Bulrush)	Wet places
<i>Lespedeza striata</i>	Japanese clover	Roadsides, etc.
<i>Xanthium Americanum</i>	Cocklebur	Richer fields
<i>Chamaesyce supina</i>		Along railroads, etc.
<i>Sarothra gentianoides</i>		Old fields, etc.
<i>Facelis retusa</i>		Roadsides, etc.
<i>Juncus macer</i>	(Rush)	Along paths
<i>Pistia crassipes</i>	Water hyacinth	Sluggish streams
<i>Acanthospermum australe</i>		Roadsides
<i>Capriola Dactylon</i>	Bermuda grass	Roadsides, etc.
<i>Sporobolus Poiretii</i>	"Swamp grass"	Roadsides, etc.
<i>Anthemis Cotula</i>	Dog-fennel	Roadsides, etc.
<i>Soliva sessilis</i>		Around towns
<i>Helenium nudiflorum</i>		Pastures, etc.

14. The Mobile delta and

15. The coast strip.

These two regions have hardly any farming, and are also too small to have any significant weed flora. No doubt some weeds could be found around the bottom-land plantations at the northern end of the delta, and in the marshes near Mobile at its southern end, but they would be too few to mean much. And to the coast strip might be attributed many weeds in and near the city of Mobile, and numerous fugitive species found long ago by Dr. Mohr on and around ballast dumps, but the latter have not been studied at all by the writer, and there is no telling how many of them still persist, and what others may have come in since his time. A study of the weed flora of these two small regions is a task for the future.

At this point it will be of interest to put together the weed censuses for all the different regions described above, and determine the commonest weeds for the whole state, as far as present information permits. In so doing the seasonal irregularities above referred to are pretty well eliminated, for if some regions have been visited oftenest in spring, others have received more attention in summer or fall. But instead of using the entire list for every region, which would run the total up to several hundred, only the first half, or less, of each regional list will be used, so that we can be reasonably certain that we are really dealing with the most abundant species.

First we will compare the hill country (regions 1 to 5) with the coastal plain (regions 6 to 15), in parallel columns.

Hill country

Coastal plain

Larger trees

Diospyros Virginiana
Pinus Taeda
Pinus echinata
Pinus Virginiana
Juniperus Virginiana

Pinus Taeda
Populus deltoides
Melia Azedarach
Diospyros Virginiana
Pinus echinata
Juniperus Virginiana

Smaller trees

Salix nigra
Robinia Pseudo-acacia

Salix nigra

Vines

Lonicera Japonica
Tecoma radicans
Smilax glauca

Lonicera Japonica
Rubus trivialis
Tecoma radicans
Smilax glauca

Shrubs

Prunus angustifolia
Sassafras variifolium
Sambucus Canadensis
Rubus argutus(?)
Rhus glabra
Rhus copallina
Symphoricarpos orbiculatus

Prunus angustifolia
Sassafras variifolium
Rubus cuneifolius
Sambucus Canadensis
Rubus argutus(?)
Rhus glabra

Herbs

Helenium tenuifolium
Sorghum Halepense
Daucus Carota
Ambrosia artemisiifolia
Andropogon Virginicus
Aster pilosus
Leptilon Canadense
Anthemis Cotula
*Erigeron sp.*⁷

Helenium tenuifolium
Erigeron ramosus
Andropogon Virginicus
Sorghum Halepense
Melilotus alba
Hartmannia speciosa
Rumex hastatulus
Axonopus compressus
Ambrosia artemisiifolia

⁷See catalogue for explanation.

Eupatorium serotinum
Senecio Smallii
Syntherisma sanguinale

Syntherisma sanguinale
Ambrosia trifida
Gnaphalium purpureum

Finally we may put these two lists together, and sum up the commonest weeds for the whole state.

Larger trees

<i>Pinus Taeda</i>	Short-leaf (loblolly) pine	Old fields, etc.
<i>Diospyros Virginiana</i>	Persimmon	Old fields, etc.
<i>Pinus echinata</i>	Short-leaf (rosemary) pine	Old fields, etc.
<i>Populus deltoides</i>	Cottonwood	Along ditches, etc.
<i>Juniperus Virginiana</i>	(Red) cedar	Roadsides, etc.
<i>Liquidambar Styraciflua</i>	Sweet gum	Old fields, etc.

Smaller trees

<i>Salix nigra</i>	Willow	Low grounds
<i>Robinia Pseudo-acacia</i>	Black locust	Roadsides, etc.

Vines

<i>Lonicera Japonica</i>	Japanese honeysuckle	Roadsides, etc.
<i>Tecoma radicans</i>	(Trumpet creeper, cow-itch)	Fields and roadsides
<i>Rubus trivialis</i>	Dewberry	Fields and roadsides
<i>Smilax glauca</i>		Fields and roadsides

Shrubs

<i>Prunus angustifolia</i>	Wild plum	Fields and roadsides
<i>Sassafras variifolium</i>	Sassafras	Fields and roadsides
<i>Sambucus Canadensis</i>	Elder	Damp roadsides, etc.
<i>Rubus argutus(?)</i>	Blackberry	Fields and roadsides
<i>Rhus glabra</i>	Sumac	Roadsides, etc.
<i>Rubus cuneifolius</i>	Blackberry	Sandy roadsides, etc.
<i>Rhus copallina</i>	Sumac	Roadsides, etc.
<i>Symphoricarpos orbiculatus</i>	Coral-berry	Calcareous roadsides

Herbs

<i>Helenium tenuifolium</i>	Bitterweed	Roadsides, pastures, etc.
<i>Sorghum Halepense</i>	Johnson grass	Roadsides, railroads, etc.
<i>Andropogon Virginicus</i>	Broom-sedge	Old fields
<i>Erigeron ramosus</i>		Fields and roadsides
<i>Ambrosia artemisiifolia</i>	Rag-weed	Fields and roadsides

Melilotus alba	Sweet clover	Calcareous roadsides, etc.
Syntherisma sanguinale	Crab grass	Fields, etc.
Hartmannia speciosa	"Primrose"	Roadsides, etc.
Rumex hastatulus		Sandy fields, etc.
Leptilon Canadense	Horse-weed	Fields, etc.
Anthemis Cotula	Dog-fennel	Pastures, roadsides, etc.
Axonopus compressus	Carpet grass	Pastures, roadsides, etc.
Ambrosia trifida	(Giant rag-weed)	Damp rich soils
Eupatorium serotinum		Low pastures, etc.
Gnaphalium purpureum		Roadsides, etc.
Geranium Carolinianum		Roadsides, etc.
Plantago Virginica	(Plantain)	Fields and roadsides

Similar lists for other states or countries would be interesting for comparison, but apparently none of this sort have been published yet.

In Dr. Smith's cotton production report of sixty years ago (cited in the bibliography), the weeds most frequently reported as pests by the leading farmers in the various counties are as follows:

Crab grass 39 times, hogweed 19, morning glory 11 (mostly in the black belt), ragweed 10, cocklebur 8 (perhaps including burs not specified, 2), purslane 6 (but some or most of this may have been *Richardia*, reported once as Florida purslane and five times as Florida clover), coffee weed 5, grass not specified 4, blackberries, briars or brambles 3, yellow dock 3, and eight or nine others once each.

Many weeds not mentioned because they did not interfere with crops were probably common then, as now, in towns and on roadsides, but some that are pestiferous now, such as Bermuda grass, Johnson grass, nut-grass and bitter-weed, must have been rare or absent in Alabama sixty years ago.

CATALOGUE OF FAMILIES, GENERA, ETC.

Many of our weed species are quite variable, as if they were still undergoing evolutionary changes, and the number of species is somewhat uncertain. But the genera are more definite, and those are here listed under their respective families, with indication of their general distribution, number of species, etc. The species, as far as known, are listed under their genera, and some of them discussed pretty fully, with common names, distribution, etc., and others only briefly.

In most cases the technical names used are those in Dr. John K. Small's *Manual of the Southeastern Flora*, 1933, but that has not been followed indiscriminately, because in some cases it seems to go too far in splitting genera and species. Many synonyms are given, to connect the present work better with older books that may be more familiar to some readers.

As already explained at the beginning of the regional lists, the common names given are believed to be mostly those in common use locally. But some have been borrowed from Georgia or Florida, and some found in northern books, but perhaps not current in the South, are enclosed in parentheses. But in many cases, where the people of Alabama seem to have no common name for a plant, none is given, for it does not seem desirable to try to introduce northern book names (some of which are mere translations of the technical names, if not wholly fictitious) here, any more than it would be to use names from other countries, where some of the same species may grow.

As a rule our weeds do not have well-defined ranges like many or most of our native plants, but are liable to turn up in new places almost any time. For that reason, and also partly for lack of time to digest my field notes of many years thoroughly, I have not attempted to give their local distribution in detail.

The floras of Elliott (1816-1824), Nuttall (1818), Darlington (1837), Torrey and Gray (1838-1841), Chapman (1860, 1883, etc.), and Gray (1878), cited in the bibliography, are important as showing what was known about the occurrences of most of our weeds in the United States, and especially in the South, in early days.

Nuttall's notes are rather brief, for he tried to list all the known vascular plants of the United States in 569 small pages, and for

most of the species he gave nothing but the name. But he described many new species and made interesting comments on many others, some of which are quoted in this bulletin.

Elliott, using about 1,300 octavo pages, devoted about half a page to each species, and indicated the habitats of the great majority of them from personal observation. Although his work was intended to cover South Carolina and Georgia, the western half of Georgia was practically unknown to him, except for a trip he made in 1818 from about the present sites of Macon, Ga., to Montgomery, Ala., and perhaps beyond. But whatever of our weed species occurred in South Carolina and eastern Georgia then should have had about the same habitats there as here.

Darlington's work, although it covered only a single county in southeastern Pennsylvania, contained descriptions of every species, and valuable original observations, something on the plan of Elliott. He had many of the same weeds that we have in Alabama, and his interesting notes on some of them will be quoted.

Torrey and Gray, as far as they went, summarized what was known about the plants of the United States a little more than 100 years ago, and they gave many references to previous authors, and made some interesting observations on particular species, several of which will be quoted in the proper places. But their ambitious project unfortunately was discontinued before it was half completed.

Gray's Synoptical Flora was a continuation of the earlier work by Dr. Torrey and himself, intended to cover the whole United States, and gave the same sort of interesting details of distribution, which have been found very useful. Dr. Gray died about two years after the publication of the last part, and the work was never completed.

Chapman's notes on distribution and habitat are rather brief, for he treated about five species on an average page, and needed most of the space for family keys and generic and specific descriptions; but his works are useful in showing the number of our weed species that were known in the South in 1860, 1883 and 1897. And a few of his observations have been found worth quoting.

Deam's Flora of Indiana (1940) contains valuable notes on the habitats of many of the same weeds that we have.

Of the total number of weeds listed herein, about one-third were not listed by Elliott, at least not under names now recognizable. But it is possible that a few of these were already in Alabama in his time, but did not extend far enough into Georgia to be detected by him or his contemporaries. Others (as is evident from Nuttall's work) were already known as weeds in some of the northern states, but apparently had not come as far south as Georgia and Alabama yet, probably because there were no railroads then. But the majority of those not seen by Elliott probably had not arrived in the United States at all then. In a few cases, however, they may have been here but not recognized as distinct species.

About one-fourth of our weeds were not mentioned by Chapman in 1860; and as his work covered Alabama and all adjoining states, it may be presumed that these either had not arrived then, or had not been detected or distinguished by the few botanists working in these parts. About 35 were added in his second edition, 1883, leaving about 18% unknown sixty years ago. About 14% were not known to Dr. Mohr in 1901, and most of these must have arrived in Alabama during the present century; perhaps 10% since the writer first came to Alabama in 1905.

Finally, about 2% are not allowed for in Small's Manual, 1933. Probably one or more additional weeds arrive nearly every year; though of course they may not be detected in some instances until they have been here several years.

Nearly 600 may seem a large number of weed species for one state; and yet if I had used "booster" methods, like some botanists, and counted as a weed every native species that occasionally lands or survives in a weedy place, and all the rare escapes, and doubtfully distinct species in large genera, to say nothing of over 100 ballast plants, and other "fugitives" or "waifs", that might be here this year and gone next year, the number might have been considerable increased, perhaps to nearly 1,000.

Species observed only once and long ago, by Dr. Mohr, on ballast grounds near Mobile, are usually omitted, because there is no certainty that they still exist in the state, and to include them would swell the list by a hundred or more. Some of those noted only once by the writer are likewise omitted, because they may have been wrongfully identified, or only transients; but others are included on the chance that they may be forerunners of a "mass

invasion," and it is desirable to have some record of their early appearance in the state.

Since the damming of some of our large rivers, particularly the Tennessee, for navigation or water-power, or both, quite a number of plants not previously known in those parts, or not thought of as weeds before, have taken possession of large areas of quiet backwaters, and created a new problem in mosquito control. A few particular species have been discussed in published papers by T. F. Hall and others (see bibliography), and some of them are listed in the following pages, but no comprehensive list of them has been published yet; and additional species may arrive almost any time anyway. My information on this subject is at present incomplete, but it is to be hoped that the botanists who are now working on aquatic weeds in the Tennessee Valley will soon give us more results of their investigations.

This catalogue is restricted to flowering plants. Many fungi can be considered weeds, especially rusts and other parasites on cultivated plants, and moulds on all sorts of materials, but those should have special treatment by some one who knows them well. A few mosses are chiefly confined to fields, sidewalks, walls, etc., and a few of our native ferns and "fern allies" grow pretty well in weedy places, but those are of no economic importance, and may as well be omitted for the present.

Very little information is given herein about how to eradicate, or even to identify, the various weeds, for this bulletin is not a textbook, and such matters are covered pretty well in existing text-books. Manuals for plant identification are readily obtainable, more indeed for the northern than for the southern states, but the great majority of our weeds grow also in the North. And methods of eradication are discussed in some of the books cited in the bibliography. However, such data might appropriately be included in future agricultural or experiment station bulletins.

It may be noted in passing that the vast majority of our weed genera were known to Linnaeus, the pioneer Swedish botanist, and his contemporaries in the 18th century, which throws an interesting light on their wide distribution.

The names of species intended to be counted are printed in heavy type, and those mentioned incidentally, and synonyms, in italics.

PINACEAE. Pine Family.

About a dozen genera and 150 species, mostly evergreen trees, and mostly in the northern hemisphere. A large proportion of them furnish useful timber, or resinous products, or both.

PINUS, Linnaeus. *The Pines.*

About 75 species, mostly in the North Temperate zone, but a few in the tropics, north of the equator.

Most of the seven or eight species in Alabama, particularly the two short-leaf pines, *P. Taeda* L. and *P. echinata* Mill., spring up readily in old fields, where they may or may not have been part of the original vegetation; and they have been listed accordingly in the foregoing regional weed lists.

Elliott said of *Pinus Taeda* in 1824 (2:636):—"Its seed is dispersed so easily and so universally over the country, that all lands which are thrown out of cultivation are immediately covered with this tree, intermingled however if the soil be sandy with the *P. Palustris*." It is now often called "old field pine."

JUNIPERACEAE. Juniper Family.

About 15 genera and 100 species, trees and shrubs, mostly evergreen, widely distributed.

JUNIPERUS, Linnaeus. *The Junipers (and Cedars).*

This genus has been variously defined. Our species, *J. Virginiana* L., the common (red) cedar, is put by some in a separate genus, *Sabina*, which is said to include about 25 species, mostly in the North temperate zone, but ranging southward to the West Indies and Mexico. Some make the Alabama cedars two species, but it is difficult to draw a line between them, as explained in our Monograph 9 (1928).^s

Assuming our cedar to be one species, it is native in many parts of the state, especially in limestone regions, and it is frequent in the same regions and occasional elsewhere, along roadsides and fence-rows, where seeds from either wild or cultivated trees may have been dropped by birds. Darlington in 1837 (572) knew it in Chester County, Pennsylvania, only from "fence rows; neglected fields, &c. frequent."

^sSee page 70 of that work. In that discussion there are two typographical errors which might confuse readers. In the middle line of the text below the cut, "could" should be *would*. And in the third line from the bottom, *distinct* was omitted between doubtfully and species.

TYPHACEAE. Cat-tail Family.

One genus and about a dozen species, in marshy places in temperate and tropical regions.

TYPHA, Linnaeus. *The Cat-tails.*

About 12 species, widely distributed.

Our common species, *T. latifolia* L., is native in marshes and other places where there is shallow standing or slow-moving water, but is probably more common in ditches along roads and railroads, and in the edges of mill-ponds, practically throughout the state.

Another species, not strikingly different, was found in a ditch near Mobile long ago, according to Dr. Mohr, and it may be commoner than is now realized, for it is almost as common in some of the northern states as *T. latifolia* is.

GRAMINEAE (POACEAE). Grass Family.

A large family, with several thousand species, of world-wide distribution, and of great economic importance, because it furnishes a large part of the food for the human race, and for hooved animals. But, like many other families that contain useful plants, it also includes many weeds. (Several other examples of this will appear in the following pages.) In fact several species that were originally cultivated for forage have run wild and become pests.

TRIPSACUM, Linnaeus. (Apparently no bona-fide common name.)
About 7 species, in temperate and tropical America.

Our species, *T. dactyloides* L., a tall coarse grass with no known common name locally, is scattered over the state, chiefly southward, and is commonly regarded by botanists as native, but it grows also in Latin America, and might have been introduced. It is chiefly confined to damp places along roads and railroads.

Nuttall said of this species in 1818 (1:85):—"On the sea coast, and also in the vast prairies of the western states." Elliott said in 1824 (2:523):—"This species has been to me very rare. I have only seen it growing on a sandy knoll on the margin of the Ogeechee River." Darlington in 1837 (95) knew of only one locality for it in Chester County, Pennsylvania, and observed that it had recently been highly recommended for fodder by some western writers, but he did not think much of it. Deam in 1940 (181) knew only two colonies of it in Indiana, both in the southern part of the state, and one along a ditch.

ERIANTHUS, Michaux. (*The Plume-grasses.*)

About 20 species, widely distributed in warmer regions.

There are perhaps five species in Alabama, presumably native. One or two of the larger ones (whose identity is not yet clearly established) are often abundant in rather open second-growth pine woods, where they probably did not grow originally.

EULALIA, Kunth.

E. viminea (Trin.) Kuntze. Native of tropical Asia. Found in recent years in damp shady places along and near the Tennessee River in Colbert and Lawrence Counties, and in ravines on the University campus. Just how it got there and how long it has been there is a mystery. It is probably a recent introduction, for it is not mentioned in Small's Manual (1933). In Hitchcock's Manual of the Grasses of the United States (1935), it is said to be introduced near Richmond, Va., Old Fort, N. C., and in Knox County, Tennessee.

RYTILIX, Rafinesque. (*Hackelochloa*, Kuntze.)

Only one species, **R. granularis** (L.) Skeels (*Manisuris granularis* Sw.), native of the tropics. Said by Mohr to be well established near Citronelle and Spring Hill, in Mobile County.

Elliott said of this species in 1824 (2:525):—"I am not certain whether this plant is really indigenous, or has been introduced from the West Indies. I have only seen it around Charleston, where, however, it is very common in dry pastures."

ANDROPOGON, L. (including *Schizachyrium*, Nees). (*The Beard-grasses.*)

About 150 species, widely distributed in the warmer parts of the world.

There are a dozen or more species in Alabama, all supposed to be native; but one, **A. Virginicus** L., the broom-sedge, abounds in old fields, nearly throughout the state, and is seldom if ever seen in perfectly natural habitats.⁹

⁹This is a variable species, like many other weeds, and may intergrade with the next, and with the supposedly native *A. scoparius* Mx. Some of its variations have been discussed by Fernald and Griscom in *Rhodora*, 37:139-143. April, 1935. *A. scoparius* is discussed similarly in the pages immediately following.

Neal said in his bulletin on Florida weeds, in 1890 (p. 14):—"It is curious to note that it takes about ten years for the Broomsedge to displace the other weeds, except Gerardias and Blackberries."

A. glomeratus (Walt.) B.S.P. grows in damp places in the black belt and southward, in some of which it probably did not grow before the land was cleared.

A. tener Kunth, known also in tropical America, appears native in some of the pine forests in the south end of the state, but also thrives along roads and railroads in the same regions.

A few other native species occasionally exhibit weedy tendencies.

A. saccharoides Sw., from the West Indies, is found occasionally in and near prairies in the black belt, and may have escaped from cultivation.

SORGHUM, Persoon. (*The Millets, etc.*)

A genus of uncertain nomenclature. In Small's Manual, 1933, it is called *Holcus*, L., and perhaps justly so, but that name was long used for a very different weedy grass common in New England, so that its use in this new sense would be confusing. *Holcus*, as defined by Small, includes about ten species. One of them, *H. Sorghum* L. includes such widely different varieties as sorghum, millet, Kaffir corn, broom-corn, and several others.

Our species, **Sorghum Halepense** (L.) Pers., commonly known as Johnson grass, is thought to be a native of northern Africa. It was brought to this country long ago for forage, and still makes excellent hay (though poisonous under certain conditions), but has run wild nearly all over the state, especially in the more fertile regions, and is now one of our commonest weeds along roads and railroads, and a well-nigh ineradicable pest in fields.

This does not seem to have been known in this country in the time of Nuttall and Elliott, and Chapman in 1860 (p. 583) noted it only as "sometimes cultivated under the name of Cuba grass." There are some interesting notes on it in Deam's Flora of Indiana (1940, p. 180).

SYNTHERISMA, Walter. (*Digitaria*, Heist.)

About 60 species, in tropical and temperate regions. About half a dozen species, all weedy, have been reported from Alabama, but they do not differ conspicuously, and only one is commonly met with and easily recognized.

S. sanguinale (L.) Nash. When this first came to the notice of English-speaking people it was called "crop grass," a very appropriate name. But that was perverted to "crap grass" by the unlettered pioneer settlers, and it was an easy—one might say inevitable—transition from that to "crab-grass," its present universal but meaningless name.

It is widespread in the warmer parts of the world, and was probably accidentally introduced here long ago, perhaps from southern Europe. It now abounds in all parts of the state, especially in fields after the crops are laid

by in late summer, and it makes very good hay, if it can be gathered without cotton stalks, etc. It is also common in other open places, such as along roads and railroads.

Mease, in 1807 (pp. 221-222), made some very interesting observations which apply to this species and its near relatives, as follows:—"Crab grass, or crop grass. (*Syntherisma praecox, serotina, et villosa*.) This grass bears one or two cuttings during the season; and grows to the height of two or three feet. It makes its appearance in the latter end of April and beginning of May, with the crops which are then advancing, and does not mature itself until the latter end of Summer, about the time the crops are made. It was hence called *crop grass*: and, by adulteration, is now called *crab grass*. . . .

"This grass is a real blessing to the southern planter. It uniformly appears in all well cultivated grounds, which have been manured, or are rich by nature. It covers the ground after the crop of Indian corn has been taken off, furnishing an excellent pasture for cattle.

"The quantity of this grass which good ground will produce, is really astonishing. During the last Winter, the author was informed by several persons of the most undoubted credit in Savannah, that Mr. Stephen Pearce, living between that town and Augusta cut so much of this grass off one acre that, with all the advantages of a warm sun, the hay could not be made on the ground which produced it."

Elliott said of it in 1816 (1:132):—"Grows every where on lands not inundated. Well known to planters under the same of crab or crop grass. It is the most troublesome grass our planters have to encounter in high ground culture, and though an annual, it is the best grass for hay at present known in our low country. Flowers through the summer."

Nuttall in 1818 (1:55-56) mentioned it briefly, and applied the name crab-grass to the whole genus (*Digitaria*), which he regarded as confined to India and North America, except for *D. sanguinalis* and one other, which were found in Europe.

Darlington in 1837 (44) said of it:—"Gardens and cultivated grounds: common. . . . This is a well known, troublesome grass to gardeners; and very difficult to keep in subjection, the latter part of summer."

Chapman said of it in 1860:—"Cultivated grounds and waste places everywhere. May - Oct."

J. T. Henderson, in his "Commonwealth of Georgia," published by the Georgia agricultural department in 1885, gives a very enthusiastic account of this grass (p. 345), from which the following is extracted:—

"The crab-grass seems to be at home on every square inch of soil within the boundaries of Georgia. . . . If there is one solitary grass or

vegetable product in all the long catalogue of those common to the Southern States that can, with strict exactness, be called *native*, it certainly is that plant called "Crab Grass." It comes unbidden and as a most unwelcome visitor in our tilled crops. But if our fields are left unbroken after a harvest, that other universal crop known as "Rag Weed" usurps the ground and leaves no chance for the growth of grass. It has, however, been often noticed that fields sown in wheat in November will invariably bring on an after-crop of the Rag weed—those sowed in spring oats will produce crab grass as an after-crop. The reason given is that the weed seed which are exposed by the plow in the spring, have begun to germinate and are destroyed by exposure, leaving the later sprouting grass to take their place."

AXONOPUS, Beauvois. (*Anastrophus*, Schlecht.)

About 30 species, mostly in tropical America.

Our commonest one, *A. compressus* (Sw.) Beauv., known as carpet-grass, is supposed to be native of Latin America. It abounds in the southern half of the state, especially in sandy soils that are flat and a little damp. Its leaves are rather short, and hug the ground pretty closely when grazed, making a close turf that is a pretty good barrier to fire. (See under *Senecio Alabamensis*, farther on.) It is abundant in little-used roads and on the margins of other roads, in the long-leaf pine country, where cattle have free range. It is esteemed as a pasture grass, and is also used on golf courses.

A. furcatus (Fluegge) Hitchcock (*Anastrophus paspaloides* Nash), a species with much larger leaves, is found occasionally in the same general region, but is commoner in beds of dried-up lakes in Florida.

PASPALUM, Linnaeus.

About 300 species, in the warmer parts of the world. Fifteen or twenty species have been credited to Alabama, some perhaps native, but most of them weedy. Our commonest ones are as follows.

P. dilatatum Poir. Dallis grass. Said to have been introduced from South America about the middle of the 19th century by A. T. Dallis, of LaGrange, Ga., whence its name. Recommended for forage, but now running wild in the southern two-thirds of the state. Blooms all summer. It has become a nuisance on lawns, because of its decumbent stems, which are hard to get at with a lawn-mower; and even when cut close to the ground new ones spring up and bloom again in a week or two. Another objection to it is that the flowers often bear a sticky exudation that stains light clothes that brush against it.

P. Urvillei Steud. (Formerly called *P. virgatum* L. or *P. Vaseyanum* Scribn.) Probably of South American origin. A worthless weed, often three or four feet tall, growing along roadsides, especially where a little damp, from about Tuscaloosa southward. Dr. Mohr first noticed it near Mobile in 1895. Blooms in summer.

P. repens Berg. (*P. mucronatum* Muhl.; *P. fluitans* (Ell.) Kunth.) Grows on weedy banks of the Tennessee, Warrior and Tombigbee Rivers. Ranges south to Argentina, and might have been introduced. Elliott, when he described it (as *Ceresia fluitans*) in 1816, attributed it to river swamps and rice fields. Deam (149) finds it "infrequent to local" in Indiana, and "restricted to the muddy banks of ponds, sloughs and streams." The oldest Indiana specimen known to him was collected near New Albany in 1836.

PANICUM, Linnaeus.

About 500 species, in the warmer parts of the world; but authorities do not agree very well on the number, for some subdivide it into more genera than others do.

About 60 species have been reported from Alabama, most of them native in woods or meadows, but some are rather weedy, and a few are introduced species. An adequate treatment of the weedy ones is hardly possible at this time, but none are serious pests, or very abundant, anyway.

The difficulties of identification in this genus were recognized as long ago as 1816 by Elliott, who said in part (1:130):—"In a genus so extensive as the *Panicum*, . . . it becomes extremely difficult without long culture, to fix the limits of each species, and to mark its appropriate character. A change of soil and exposure, will produce variations in a plant which may deceive the most cautious observer; and even in species really distinct, the eye often perceives differences which it is not easy to express."

Darlington in 1837 (50) said of the species of this genus (with which he included *Echinochloa*):—"They are all worthless to the agriculturist, and regarded as little better than mere weeds."

The following are among the common weedy ones, though the identification of some of them is still in doubt.

P. virgatum L. In various habitats. Native in prairies, marshes, etc., but seen oftener along railroads and in other weedy places. Elliott (1:121) knew it only near salt water in South Carolina, but Deam (158) found it in a great variety of habitats, natural and unnatural, in Indiana, and in nearly every county in the state.

P. capillare L. (or *P. cognatum* Schult.?) Perhaps native, but found usually in vacant lots, old fields, etc. Blooms in fall. Darlington said of it in Pennsylvania in 1837 (45):—"Sandy grounds, Indian cornfields, pastures, &c. common."

P. anceps Mx. (or *P. agrostoides* Spreng.?) Probably native, but often found in weedy places that are damp or shady, such as weedy river-banks, little-used roads in river-bottoms, etc. Elliott (1:118) found it "in ditches and wet soils. Common along roads."

P. proliferum Lam. Supposed to be native, but found mostly in ditches, etc. Dr. Mohr said of it, "Throughout the state." I noted it in September, 1927, in a roadside ditch in Cullman, and in the eastern part of Morgan County. Elliott (1:117-118) found it common in rice fields in South Carolina.

ECHINOCHLOA, Beauvois. (*Barnyard Grasses*.)

Formerly included in *Panicum*, but seemingly distinct enough. About 10 species, in tropical and temperate regions.

Our commonest one is **E. Crus-Galli** (L.) Beauv., which is believed to have come from either southern Europe or tropical America. It grows in damp places, especially near barn lots, and is scattered over the state, but nowhere abundant.

Elliott (1:114-115) found it in rice fields in South Carolina, and Deam (174-175) in a considerable variety of weedy habitats in Indiana, and quite variable.

E. colona (L.) Link, a related species, also cosmopolitan, is less common, but was said by Mohr to be frequent in Mobile and Baldwin Counties.

CHAETOCHLOA, Scribn. (*Setaria* of older books.) (*Fox-tail grasses*.)

About 60 species, mostly in warm regions.

About a dozen have been reported from Alabama, all introduced, but most of them look much alike, and I have not attempted to distinguish them. Some have been cultivated for forage, and escaped. They are found mostly on roadsides, and in hay fields.

CENCHRUS, Linnaeus. (*The Sand-spurs*.)

About 25 species, mostly in tropical America. Five species have been reported from Alabama, one apparently native on sea beaches, and the others probably introduced.

They may be eaten by cattle when young, but are very objectionable at maturity, on account of their burs covered with sharp spines, which are painful to barefooted children, and annoying when they stick to clothing, cows' tails, etc. They bloom in summer, and the burs persist through the fall.

They prefer sandy soils, and are confined to the coastal plain, or nearly so. **C. pauciflorus** Benth. (formerly confused with *C. tribuloides* L.) grows along roadsides as far inland as Tuscaloosa. **C. echinatus** L. is abundant after cultivation in fields in some parts of southern Alabama.

Neal (1890, p. 15) said of this genus in Florida:—"Rating weeds in order of their badness, I would give the Sandspurs the first place. They are bitter grasses eaten only as a last resort by cattle, and all other weeds in the State combined do not cause as much pain, profanity and danger to life, as these worthless grasses."

PHALARIS, Linnaeus.

About 20 species, in Europe and America.

P. Caroliniana Walt. seems to be native in the prairies of the black belt, especially in damp places, and also spreads to roadsides.

P. Canariensis L., Canary grass (said to have come from the Canary Islands,) is cultivated for ornament, and occasionally escapes.

ARISTIDA, Linnaeus.

About 150 species, in the warmer parts of the world.

Eight species are reported from Alabama by Mohr, and there may be one or two others. Most of them are native in dry woods, etc., but prefer fields, roadsides, etc. They bloom in summer and fall.

Those I have noted most frequently in weedy places are *A. oligantha* Mx., on roadsides, more or less sandy, and *A. purpurascens* Poir., in dry old fields.

ALOPECURUS, Linnaeus.

(This name if translated would be fox-tail, but that name seems to be applied usually to species of *Chaetochloa*, mentioned above.) About 25 species, in the North Temperate zone, mostly in the Old World. One in Alabama.

A. Carolinianus Walt. (*A. ramosus* Poir., long confused with the European *A. geniculatus* L., or regarded as a variety of it.) In Dr. Mohr's time this may have been regarded as introduced from Europe; but referring it now to a species originally described from South Carolina would automatically make it native in the estimation of many botanists. However, it is a good example of the group of alleged natives which are always weeds. It is especially characteristic of fields when they are damp from spring rains, and have not been plowed. And if the field is not plowed, the plant dries up and disappears in summer anyway, like many other annuals. It is fairly common in the northern half of the state.

Elliott (1:111) found it in rice fields in South Carolina, blooming in March, and Deam (130) found it around ponds and in ditches in northern Indiana, and in clayey fields in southern Indiana.

SPOROBOLUS, R. Brown.

About 90 species, mostly in the warmer parts of America. Seven or eight species are known in Alabama, mostly native in dry woods.

S. vaginiflorus (Torr.) Wood, alleged to be native, grows on roadsides in Tuscaloosa and elsewhere.

S. Poiretii (R. & S.) Hitchc. (formerly confused with *S. Indicus* (L.) R. Br., and later called *S. Berteroanus* (Trin.) Hitchc. & Chase, and called "smut grass" in the books) is fairly common along roads and paths in the southern half or two-thirds of the state. The name given in the books alludes to the fact that its seeds are often covered with black powdery fungus spores. In South Georgia I have heard it called "swamp grass," which is not a very appropriate name. It seems to have been introduced from the tropics. Blooms in summer.

The true *S. Indicus* is said by Small and by Hitchcock to have been collected on ballast at Mobile, and it is probably what Mohr identified as *S. tenacissimus*, and said he had observed continuously since 1891.

POLYPOGON, Desfontaines. (*Beard-grasses.*)

About ten species, mostly in the Old World. Two introduced in Alabama.

P. Monspeliensis (L.) Desf. Native of the Old World. Reported by Mohr as sparingly naturalized in waste places near Mobile.

P. lutosus (Poir.) Desf. (*P. littoralis* (With.) J. E. Smith.) Reported by Mohr as rare on the shores of Mobile Bay. What may be the same species was reported by Chapman in 1860 (552) as introduced on the coasts of North and South Carolina, and by Small in 1933 (103) on Tybee Island, Georgia.

AGROSTIS, Linnaeus. (*Bent-grasses.*)

About 100 species, mostly in the North Temperate zone. About six species reported from Alabama, most of them considered native.

A. alba L. (and its variety *vulgaris*, called *A. tenuis* in Small's Manual) Native of Europe, cultivated for hay in damp meadows, and running wild, according to Mohr. I have probably seen it, but paid little attention to it, either because it is not conspicuous, or because it did not appear to be a wild plant. It is cultivated more in the North than in the South; but Chapman said of it as long ago as 1860 (551):—"Damp soil, Florida, and northward. Introduced."

A. hiemalis (Walt.) BSP. (*Trichodium laxiflorum* Mx.; *Agrostis scabra* Willd.) An alleged native, scattered over the state in low sandy fields, according to Mohr. I identified it once on the University campus.

ARRHENATHERUM, Beauvois. (*Oat-grasses*.)

Six species, natives of Europe and Asia. One introduced in Alabama.

A. elatius (L.) Beauv. (*A. avenaceum* Beauv.) I have not identified this, but according to Mohr it is cultivated and escaped in the black belt, and has been found also in Cullman County, and on ballast near Mobile. Chapman in 1860 (569) knew it only from North Carolina.

AIRA, Linnaeus.

In Small's Manual this name is applied to a different genus, and our species is referred to *Aspris*, Adans., which is said to have nine species, all natives of Europe.

There seems to be some doubt as to which species we have in Alabama, but it was referred by Mohr to *A. caryophyllea* L. He reported it from Cullman, Lee and Mobile Counties, and I have seen it in Greene, Hale and perhaps one or two others. It grows abundantly on dry roadsides, but in widely scattered localities, and it can hardly be called common.

CAPRIOLA, Adanson. (*Cynodon*, Rich.)

About six species, native in warm regions.

Ours is *C. Dactylon* (L.) Kuntze, the familiar Bermuda grass, native of southern Europe, or perhaps the West Indies. It seems to have been brought to the southern states long ago for lawns and pasturage, for which it serves very well; but it often spreads to places where it is not wanted, throughout the state, and it is hard to get rid of. Farmers have been complaining lately that when it is planted along state highways to protect the shoulders it soon spreads to adjoining fields.

It blooms in early summer, but does not seem to make much seed, as it depends mostly on the growth of its creeping stems for propagation.

Some interesting notes on this grass are found in old books. Mease (1807, p. 227) says:—"But probably as important a grass as any for the southern States is the Bermuda grass, which grows with great luxuriance, and propagates with astonishing rapidity, by means of its numerous joints, every one of which takes root, and thus also performs the important office of binding the sandy soil in which it grows."

Elliott (1816, 1:133) says:—"We have two varieties of this plant, one coarser (perhaps a species) growing in damp soils, native; the other described

above, said to be imported, a tender delicate grass, growing over and binding the most arid and loose lands in our country, and apparently preferred by stock of all descriptions to every other grass. The cultivation of this grass on the poor and extensive sand hills of our middle country would probably convert them into sheep walks of great value; but it grows in every soil, and no grass in close rich land is more formidable to the cultivator; it must therefore be introduced with caution. Grows common in the low country, particularly in loose soils."

Nuttall in 1818 (1:56) said:—"A remarkably creeping grass, growing very luxuriantly in the sands of the sea coast, as well as the poorest loose soils, and were its extirpation not so difficult, might be of importance for forming pastures where scarcely any other vegetable could exist. There is only 1 species, the *C. Dactylon*, common to Europe, North America, and the West India islands."

Henderson (1885, p. 343-344) said:—"But better, far, than any or all of these is that world-renowned grass *Cynodon Dactylon*, known in India as the "Daub" or sacred grass, and throughout the Southern States as Bermuda grass. This grass is not propagated by its seeds, and indeed it is not thought to mature its seeds in the United States, at least by very few having any experience of its habits. It takes deep hold in the soil with its mass of roots, besides covering the surface with a superficial network of twine-like runners which make one of the most compact swards of which we have any experience. . . . The farmer of experience, who knows to his cost what it is to feed a herd of cattle during the cold weather of winter, will know how to estimate the value of a grass that men say can never be got rid of; that ties the most washing soil together; . . . There cannot be a question of its superiority as a grass and hay producer over anything known in Europe or the United States."

Deam (1940, p. 143) found it sparingly established in Indiana, and withstanding temperatures considerably below zero.

ELEUSINE, Gaertner.

Six species, native of the warmer parts of the Old World.

E. Indica (L.) Gaert. is common around houses, gardens, barn lots, etc., especially where the soil is a little damp or rich; sometimes also on roadsides. It is distributed pretty well over the state, and blooms all summer.

Darlington said of it in Pennsylvania in 1837 (82):—"Farm yards, lanes, and along foot paths: common. . . . This grass makes a fine carpeting in lanes and wood yards, in the latter part of summer. Cattle and hogs are very fond of it,—and Mr. Elliott commends it, for hay; but it rarely grows in mowing grounds, to any extent, with us. It always appeared like an introduced plant, to my view,—though no American Botanist speaks of it

as such. One or two other species have been found in the Southern States."

Dr. Mohr found another species on ballast near Mobile, for several successive years.

DACTYLOCTENIUM, Willdenow.

Three species, native probably of the Old World.

Our species is *D. Aegyptium* (L.) Richter (*Eleusine Aegyptaca* Pers.), commonly called crowfoot grass. It grows mostly in sandy fields in the coastal plain, where it is often abundant. It blooms in late summer, after plowing ceases.

LEPTOCHLOA, Beauvois.

About 20 species, in warm regions.

Ours is *L. filiformis* (Lam.) Beauv. (*L. mucronata*, Kunth.) It seems to have no common name recognized locally. It grows in fields and gardens, especially in sandy soil, and in the southern half of the state, but it is not common. I have seen it also on the weedy banks of the Tombigbee River. Elliott said of it in 1816 (1:175) "Grows in cultivated land; not rare."

TRIODIA, R. Brown. (*Sieglingia*, Bernh.)

About 30 species, in temperate regions. About three in Alabama, but apparently only one weedy.

T. flava (L.) Smyth. (*Sieglingia seslerioides* (Mx.) Scribn.) A rather tall but delicate grass, alleged to be native, but very characteristic of dry roadsides, in most parts of the state. Blooms in late summer. Darlington said of it in 1837 (74):—"Dry, sandy banks, and sterile old fields: frequent."

T. stricta (Nutt.) Benth., supposed to be native, was collected in a low place in the M. & O. R.R. yards in Tuscaloosa, Sept. 29, 1935. I have not identified it elsewhere, but Dr. Mohr reported it, without indication of habitat, as having been collected long ago in Wilcox County by Buckley. It was not recognized by Chapman until 1897 (610), when he attributed it to Mississippi and westward.

ERAGROSTIS, Beauvois.

About 100 species, in temperate and warm regions.

About 15 have been reported from Alabama, most of them supposed to be native, but a few are known to have been introduced, and some of the alleged native ones are decidedly weedy. I have not studied them sufficiently, but have distinguished the following weedy ones. All bloom in late summer or fall.

E. hypnoides (Lam.) B.S.P. (*E. reptans* Nees.) Grows in damp rich soils where it is not crowded by other vegetation, such as river-banks and dried-up ponds. Scattered pretty well over the state, but not common.

E. cilianensis (All.) Link. *E. major* Host.) In fields and gardens, mostly northward.

E. ciliaris (L.) R. Br. Sandy fields and roadsides, especially south-eastward. Probably of tropical origin.

E. capillaris (L.) Nees. "Tickle-grass." Conspicuous in the fall for its stiff but delicate feathery panicles, more or less purplish, which break off at maturity, forming tumble-weeds. Commonly supposed to be native, but grows mostly in waste places, and fields that have not been cultivated for a year or two, especially if sandy. Chapman in 1860 (564) gave its habitat as "Dry uncultivated fields." Dr. Mohr found it on "Dry sandy hills, borders of fields and roadsides," from Autauga County to the coast, and I have seen it in Tuscaloosa. We probably have one or two other related species, with similar habitats, but I have not looked at them closely enough to identify them.

A few other weedy species, that I have not identified yet, were reported by Mohr in 1901.

BRIZA, Linnaeus. (*The Quaking grasses.*)

About 12 species, natives of Europe and Asia. Dr. Mohr reported two in Alabama, but I have seen only one of them.

B. minor L. A delicate little grass, of rather unique and attractive appearance, growing on damp roadsides in Tuscaloosa County, and a few places farther south. *B. media* L., reported by Dr. Mohr from Cullman and Mobile Counties, is not now supposed to occur south of Michigan.

DACTYLIS, Linnaeus. (*Orchard grasses.*)

Two species, European. One of them introduced in the eastern United States.

D. glomerata L. Occasional on roadsides, etc., in northern Alabama. Much commoner in New England. Mease in 1807 (226) seemed to know it only in cultivation. Elliott in 1816 (1:155) said of it:—"Grows near Charleston. James Island. A native of Europe; now naturalized."

POA, Linnaeus. (*Blue-grass, etc.*)

About 200 species, in the cooler parts of the world. Nine species reported from Alabama, mostly weeds.

P. annua L. Abundant on lawns, etc., where not too crowded. Blooms in spring, and disappears in summer.

Elliott (1:159) says:—"A tender, delicate, early grass; common around buildings, in gardens, and cultivated grounds; perhaps originally imported, now universally diffused. Flowers February-April." L. C. Beck in 1826¹⁰ listed this and the next as characteristic prairie grasses near St. Louis.

Darlington said of *P. annua* in Pennsylvania in 1837 (76):—"Cultivated grounds; foot paths, &c. frequent. . . . This humble species is believed to have been introduced from Europe." Chapman in 1860 (562) said of it:—"Yards and gardens, Florida, and northward. Feb. and March. Introduced." Deam found it in a variety of habitats in Indiana.

P. compressa L. Reported by Mohr from the Tennessee Valley to Montgomery County; but I have not identified it outside of New England.

Called by Mease in 1807 (218) "a native grass of the United States." Chapman (563) said "With the preceding" (*P. pratensis*), of which he said "Rich soil, mostly around dwellings." Deam found it almost everywhere in Indiana except in very wet places and dense woodlands.

P. pratensis, L. Kentucky blue-grass. Lawns, pastures, etc., in the Tennessee Valley. Rare or absent southward. Blooms in spring. Darlington said of it in 1837 (75):—"It is generally believed by the botanists to be a naturalized foreigner."

FESTUCA, Linnaeus. (*Fescue grasses*.)

About 100 species, in temperate regions. Four species and a variety have been reported from Alabama, one or two of them native.

F. octoflora Walt. (*F. tenella* Willd.) Common on roadsides, etc., pretty widely distributed over the state. Blooms in spring and disappears in summer. Supposed to be native, but always a weed.

F. Myuros L. Similar to the preceding, but has larger flower spikes. Blooms about the same time. Collected in a dry pasture near Tuscaloosa, May 1, 1942. Said to be native of Europe; but known also from the West Indies and Mexico, and might have come from that direction.

BROMUS, Linnaeus. (*Chess, Cheat, etc.*)

About 100 species, in temperate regions. About five in Alabama, one of them native.

¹⁰Am. Jour. Sci. 10:262. 1826.

B. racemosus L. Native of the Old World. Frequent in fields and waste places over the state, according to Mohr.

B. secalinus L. Native of Europe. A common weed wherever grain is cultivated, according to Mohr.

B. catharticus Vahl. (*B. unioides* (Willd.) HBK.) Probably native of tropical America. Escaped from cultivation, according to Hitchcock. Grows on roadsides, mostly in and near towns, in the southern half or two-thirds of the state. Mohr in 1901 described it as not rare in Montgomery, Dallas and Mobile Counties, but I never noticed it in Alabama, Georgia or Florida until about 1925. It now grows at least as far north as Tuscaloosa. Blooms in spring, disappears in summer.

B. Japonicus Thunb. Not reported by Mohr, but now common along roads and railroads in several parts of the state. Blooms in spring and dies in summer; whitish and conspicuous for awhile when dying. Looks much like *B. tectorum*, a common weed in some New England cities.

LOLIUM, Linnaeus. (*The Darnels.*)

About eight species, natives of the Old World.

L. multiflorum Lam. (*L. Italicum* A. Br.) Italian rye. Often planted on lawns, to make green grass in winter, and seems to escape from cultivation to some extent. Blooms in spring, and soon dies.

Dr. Mohr reported *L. perenne* L. from Cullman and Mobile Counties, and collected *L. temulentum* L. once in Mobile County.

HORDEUM, Linnaeus. *Barley, etc.*

About 20 species, in the North Temperate zone. One is a common weed in Alabama, and another was found once by Dr. Mohr on ballast near Mobile.

H. pusillum Nutt. Alleged to be native, but always a weed, and a rather "weedy" looking one at that. Grows on dry roadsides; common at least as far north as Tuscaloosa. Blooms in May, and soon dies and disappears. The upper part of the spike ripens first, and turns yellow and dies before the lower, giving the plant a peculiar (and unattractive) appearance.

Nuttall, when he described this species in 1818 (1:88-89), said it grew "On the arid and saline plains of the Missouri." Elliott at that time did not know it in South Carolina or Georgia. Chapman had no record of it in the southeastern states in 1860, but in 1883 (664) he described what is probably the same thing (as *H. pratense* Huds.) from "Road-sides and waste ground. Introduced," but without indicating where. I used to see it in Athens, Georgia, in the 90's, if I remember correctly. It has been more or less confused with *H.*

nodosum L. (*H. pratense*), a similar species, which is supposed to be native of Europe. Deam's first record of *H. pusillum* in Indiana goes back only to 1890. He also had a recent record of *H. nodosum* from one county.

ELYMUS, Linnaeus.

About 30 species, in temperate regions.

Three or four are reported from Alabama, supposedly native, but rather weedy, often growing on damp roadsides. They are much alike, and I have not distinguished them in recent years, but I have seen at least one on roadsides in the black belt and elsewhere. The species are more numerous in the North and West.

CYPERACEAE. Sedge Family.

A large family of world-wide distribution, with about half as many species as the preceding family. The sedges resemble the grasses in general appearance, and are often mistaken for grasses by unscientific persons. This family contains far fewer useful plants than the grasses, very few of them being used for food or forage; and also fewer weeds.

CYPERUS, Linnaeus.

About 600 species, mostly in warm regions.

About 35 are known in Alabama, some native, some introduced, and some of doubtful classification. Many of them grow in damp sandy soils, and bloom in summer. Our principal weedy ones are as follows.

C. flavescens L. A cosmopolitan species, probably not native here. Grows mostly on damp roadsides, in wet meadows, etc., in the northern half of the state.

C. compressus L. Probably introduced from the tropics. Grows mostly in sandy fields in the southern half of the state.

C. Iria L. Native of Asia. Rather scarce in Alabama, but I have seen it on roadsides near Crossville (on Sand Mountain) and Selma.

C. Haspan L. Probably introduced from the tropics. Grows in damp places in the southern half of the state; not common.

C. pseudovegetus Steud. Supposed to be native, but found mostly in weedy places, such as ditches and other wet places along railroads. Commonest in the coastal plain, but seen occasionally in the Tennessee Valley.

C. squarrosus L. (Called *C. cuspidatus* HBK. in Small's Manual). Native of tropical America. According to Small¹¹ it was first found in the United States near Jacksonville, Florida, in the last decade of the 19th century. I found it in southeastern Georgia in 1900 and later.¹² In Alabama I have found it about two miles west of Spring Hill, Jan. 3, 1906, and near Calvert in the same county, May 16, 1927. It is a diminutive plant, growing among short grass in slightly damp sandy soil, and could easily be overlooked.

C. rotundus L. Nut-grass. (Called "coco" farther west.) One of our worst weeds, presumably of tropical origin. But it must have been less common sixty years ago, for it was not mentioned as a pest by any of the farmers who reported on cotton production for the census of 1880, though it was listed among the weeds of southern Alabama by Dr. Mohr on page 67 (57) of the same volume (cited in the bibliography.) It grows on roadsides, on lawns, and in gardens and fields, where it is very difficult to eradicate, on account of its tubers which are several inches below the surface. It is common in the southern half of the state, less so northward. It blooms all summer.

There are a few stories about it in circulation, one of which is that "the only way to get rid of it is to move away and leave it." Another is to the effect that "if you burn nut grass and scatter the ashes, it will come up from those."

Several bulletins and articles have been written on methods of eradicating it, but modern investigators do not seem to have improved much on a method outlined by Elliott in 1816 (1:68-69). He there called it *C. Hydra*, as several other 19th century botanists did, but used the same common name that we do now, so that there is no mistaking what species he had in mind. His observations are, in part, as follows:—

"This grass is becoming a great scourge to our planters. It shoots from the base of the stem a thread-like fibre, which descends perpendicularly 6 - 18 inches, and then produces a small tuber. From this, horizontal fibres extend in every direction, producing new tubers at intervals of 6 or 8 inches, and these immediately shoot up stems to the surface of the earth, and throw out lateral fibres to form a new progeny. This process is interminable, and it is curious to see what a chain or net-work of plants and tubers can with some care be dug

¹¹Bull. Torrey Bot. Club, 22:44. Jan. 1895. This may, however, be what Chapman identified near Apalachicola in 1860 (510) as *C. inflexus*, and in 1897 (537) as *C. aristatus*.

¹²See Bull. Torrey Bot. Club, 28:465. 1901; Ann. N. Y. Acad. Sci 17:288. 1906.

up in a loose soil. The only process yet discovered by which this grass can be extirpated, is to plough or hoe the spots in which it grows every day through a whole season. In their perpetual efforts to throw their leaves to the light the roots become exhausted and perish, or if a few appear the next spring, they can easily be dug up. This experiment has been successfully tried by John M'Queen, Esq., of Chatham county, Georgia."

But in his formal description just above the paragraph quoted he gives the habitat of this species as "the drift sands along the margin of the ocean." And Chapman in 1860 (508) said of it, "Sandy soil, along the coast, Florida to North Carolina." It would appear from all this that it did not spread into the interior much until after the Civil War.

Neal said of it in Florida in 1890, "It would certainly be a misfortune beyond measure, if the Nut grass should cover our best lands with its almost ineradicable shoots," and farther on, "Rating weeds in order of badness, . . . Nut grass ranks third, and, once well established in a field, usually outlives the owner."

It may spread from one field to the next by means of its roots, but just how it crosses roads and rivers is not known.

C. esculentus L. Chufa. Another tropical species, resembling the preceding, especially in flowers. But its tubers are much nearer the surface, and easier to eradicate, and it is much less common, and chiefly confined to the coastal plain. It is sometimes cultivated as food for hogs, and children sometimes eat the tubers, which have a nutty flavor.

Some notes on its occurrence in Indiana can be found in Deam's Flora of Indiana, 1940 (p. 189).

C. strigosus L., and several related species, may be native, but often grow in damp fields, ditches along railroads, etc., pretty widely distributed over the state.

C. echinatus (Ell.) Wood. Alleged to be native, but found oftenest in comparatively rich and shady places around dwellings, mostly in the southern half or two-thirds of the state.

Elliott, when he described this species in 1816 (1:75, pl. V, fig. 1) said of it, "Grows in cultivated land. Very common." And Chapman in 1860 (512) attributed it only to cultivated ground.

KYLLINGA, Rottboell. (Formerly spelled *Kyllingia*.)

About 40 species, in the warmer parts of the world.

Our commonest one, *K. pumila* Mx., a little plant a few inches high, is supposed to be native, but grows also in Latin America, and might have been introduced from there. It grows mostly in miry and springy places, with more or less weedy vegetation, mainly in the southern half of the state. Blooms in summer.

K. brevifolia Rottb. (*K. monocephala* L.f.), of similar origin, a somewhat smaller plant, grows in similar places, but is less common, and more confined to the vicinity of the coast.

ELEOCHARIS, R. Brown. (*Spike-rushes.*)

Over 100 species, widely distributed, the majority in wet or at least damp places. Alabama has 15 or 20 species, mostly unquestioned natives, though a few range southward to the tropics, and may have originated there.

Our principal weedy one is *E. obtusa* (Willd.) Schult., which grows in roadside ditches more than it does in natural habitats. It is pretty widely distributed over the state, but is probably commonest northward.

E. compressa Sull., which was not recognized as a member of the Alabama flora in Dr. Mohr's time, differs from most of our other species in having thick horizontal rootstocks and flattened stems. It is evidently native in damp places on limestone, in the Tennessee Valley, but I have seen it oftenest in dim roads that have been used for hauling logs, etc., such as on the slopes of Monte Sano in Madison County.

It does not appear under this name in current manuals, even in Small's Manual, 1933; but it has a pretty wide range in the United States. Some account of its distribution in Indiana and elsewhere was given by Deam in 1940 (pp. 203-204).

FIMBRISTYLIS, Vahl.

About 130 species, widely distributed. Four or five species in Alabama, probably all native, though at least two thrive in weedy habitats. They bloom in summer and fall.

F. autumnalis (L.) R. & S. Found oftenest in roadside ditches and dried-up ponds. Widely distributed over the state, but not abundant.

F. VahlII (Lam.) Link. Known principally on the banks of the Warrior and Tombigbee Rivers, below high-water mark, where it may be native, but has quite a number of weedy associates. (See Bull. Torrey Bot. Club, 37:119, 122-123. 1910.) I have not seen it since 1908.

STENOPHYLLUS, Rafinesque.

About 90 species, mostly in warm regions.

Dr. Mohr reported three species and a variety from Alabama, but one of those was a misidentification (see Bull. Torrey Bot. Club, 37:123. 1910), and another species has been added since. They are mostly natives, one growing commonly on flat granite and sandstone rocks, and the others in sand.

Our only real weedy one is *S. barbatus* (Rottb.) Britton, a small annual, which has had an interesting history in the last fifty years. It was described as *S. Floridanus* Britton, in 1895, and for several years was thought to be one of many species of plants endemic to Florida. But in 1900 and afterward I found it in South Carolina, Georgia and Alabama,¹³ always in weedy places, and I began to be suspicious. Later Dr. Britton identified it as being identical with *Isolepis barbata* (Rottb.) B. Br. of southern Asia, and the name was changed accordingly in Small's Manual, 1933. It grows mostly in sandy fields and on roadsides, from Autauga County southeastward. It is peculiar in that it does not become visible at all until about the middle of the year. It then develops rapidly, and blooms in late summer, and ripens its seeds in the fall. In South Georgia it has received the curious name of "water grass," said to be derived from the fact that it thrives best after a wet summer. Just how long it has been in the United States is not known, but probably not much more than fifty years, for it is a very distinct species, and easily recognized, even from a train, but was not mentioned by American botanists until 1895.

An undoubted native species, *S. capillaris* (L.) Britton, grows on rock outcrops, and in sandy soils, but also sometimes among cinders along railroads. Just what description, if any, in Elliott's work applies to it is not certain. Chapman in 1860 (522) attributed it to "moist sandy places;" but Dr. Mohr knew it in Alabama only from near the summit of our highest mountain. I have seen some fine large specimens on sandstone near the edge of the plateau in Morgan County, and smaller ones as weeds along the Mobile & Ohio R. R. near Booth, Autauga County. (It is quite common in similar places in New England.) Deam (206) found it in Indiana "in very dry, sandy soil, usually in fallow fields and clearings, on open, sandy knolls and dunes."

SCIRPUS, Linnaeus. (The Bulrushes.)

About 200 species, widely distributed over the world. Alabama has about 15 species, mostly native in wet places of various kinds, but a few weedy.

¹³See Bull. Torrey Bot. Club, 28:467. 1901; Ann. N.Y. Acad. Sci. 17:283. 1906; Torreya, 16:243. 1916.

By far the commonest weedy one is *S. carinatus* (H. & A.) Gray (lately re-named *S. koilolepis* (Steud.) Gleason), a diminutive annual. It is alleged to be native, but seems to be strictly confined to weedy places, such as damp roadsides, and fields that are moist in spring. Like several other annuals, previously mentioned, it flourishes in spring and disappears in summer. Dr. Mohr had a specimen of it from Mobile County, mistakenly labeled *Hemicarpha micrantha*, and then reported it from the state without definite locality, on the strength of a statement by Britton (not cited definitely). I have found it in many counties, mainly in the southern two-thirds of the state, but have not yet seen it in any other state.¹⁴

S. Cubensis Poepp. & Kunth, presumably introduced from tropical America, grows on decaying floating logs near the mouth of the Mobile River. Dr. Mohr reported it from there, and I collected specimens there in 1908, but have not seen it since.

S. Eriophorum Mx., our largest species, was treated by some 19th century authors as belonging to the related genus *Eriophorum*. It runs into several varieties and related species in New England, but seems to be quite uniform in Alabama. It is supposed to be native, but is found oftenest in ditches and marshy places along roads and railroads, mainly in the southern half or two-thirds of the state. It is not very different from *S. cyperinus* (L.) Kunth, the common northern form, whose variations and habitats in Indiana have been described by Deam (1940, pp. 196-197).

S. atrovirens Muhl. and *S. Georgianus* Harper, smaller species, presumably native, are often found in habitats similar to that of the preceding but not so wet; and they are less common.¹⁵

RHYNCHOSPORA, Vahl. (Originally misspelled *Rynchospora*.)

About 200 species, mostly in warm regions. Alabama has about 30, most of them native in wet sandy places in the coastal plain. But at least one of them has decided weedy tendencies.

¹⁴See Bull. Torrey Bot. Club, 33:525. 1906; 37:123. 1910.

¹⁵See Bull. Torrey Bot. Club, 33:526. 1906. *S. Georgianus*, described from Georgia in 1900, was thought at first to be a rather local species in Georgia; but it was soon found to range pretty widely over the eastern United States. (See Robinson & Fernald, in "Gray's" Manual, 7th ed., p. 194. 1908.) Some authors are now inclined to treat it as only a variety of *S. atrovirens*.

R. inexpansa (Mx.) Vahl, alleged to be native, is found principally on damp sandy roadsides, in the southern half of the state, and I am not sure that I have ever seen it in a perfectly natural habitat, in Alabama or any other state.

R. glomerata (L.) Vahl, including its variety *paniculata*, is similarly inclined, and about as common. A few others are not above suspicion of occasional weediness.

CAREX, Linnaeus. (The Sedges.)

One of the world's largest genera, with about 1,000 species, mostly in temperate regions. The genus has two principal subdivisions, *Carex* proper (or *Eucarex*), with three-angled achenes and usually several separate spikes, often stalked, and some or most of them wholly pistillate, and *Vignea*, with lenticular achenes, and spikes usually sessile and containing both kinds of flowers, and aggregated into compound spikes.

In the United States they are more numerous in the North than in the South, but Dr. Mohr reported 57 species and a few varieties from Alabama, and several others have been added since his time. The vast majority are unquestioned natives, in rich woods, bogs, etc., but we have a few weedy ones, especially in the section *Vignea*. Most of our *Eucarex* species bloom in April, and the *Vigneas* a month or more later.

C. lurida Vahl. (*C. tentaculata* Muhl.) grows commonly in ditches and meadows, mostly northward.

C. Cherokeeensis Schw. A very well-marked and easily recognized species, undoubtedly native in calcareous soils, in the Tennessee Valley, black belt, lime hills, etc. Also occasionally a weed along roads in the same and neighboring regions. Chapman in 1860 (542) gave it range as "Banks of the Apalachicola River, Florida, to the mountains of Georgia, and westward."

C. cephalophora Muhl. is found oftenest in yards, where it seems to like partial shade.

C. vulpinoidea Mx., and perhaps some related species, is fairly common in roadside ditches.

PALMAE (or ARECACEAE). Palm Family.

A large family, mostly handsome tropical evergreen trees. The three species in Alabama, representing as many genera, are low, essentially stemless plants, which occupy about the same place in vegetation as shrubs, though they are not shrubs, strictly speaking, and not exactly herbs either.

SABAL, Adanson. *The Palmettos*

About 18 species, in the warmer parts of America.

The only one in Alabama, *S. minor* (Jacq.) Pers. (formerly called *S. Adansonii*, and *S. glabra*) is native in alluvial bottoms, etc., mostly in the coastal plain, but often appears as a weed in low pastures, in and near the black belt. Its leaves are very tough, but may be browsed by cattle in winter, when other foliage is scarce.

ARACEAE. Arum Family.

About 100 genera and 900 species, most numerous in the tropics.

ACORUS, Linnaeus.

Two species, the other one in Japan.

A. Calamus L. Calamus (root). Grows also in Europe and Asia, and may have been introduced into the United States, but is believed by some botanists to be native in the north-central states, at least.²⁶ It is commoner in the North than in the South, anyway.

In Alabama I have seen it in marshy places in and near Stevenson, Athens, Jasper and Tuscaloosa, usually near homes of negroes, who esteem it for medicinal purposes, and may have planted it. But if planted it seems to maintain itself indefinitely. It seems to produce little or no seed in Alabama, and apparently can spread only slowly by the growth of its rootstocks. Dr. Mohr reported it from Montgomery and Mobile Counties, and I have had reports of it from a few other places, mostly from people who had seen it only once, and that long ago. But it may be commoner than is supposed, for its flowers are inconspicuous, and its leaves could easily be mistaken at a little distance for those of some species of *Sparganium*, or *Iris*.

Elliott said of it in 1817 (1:403) "Grows in wet places, around ponds, &c., near settlements; naturalized but scarcely indigenous." That applied particularly to South Carolina. But Nuttall, covering the whole United States, had a different version. He said of it in 1818 (1:227) "Common and indigenous. . . . Common to Europe and North America, there is also a second species in China." On the contrary, William Darlington, in his

²⁶See M. F. Buell, *Rhodora*, 37:367-369. Oct. 1935; Harper, *Torreyia* 36: 143-147. Dec. 1936, etc.

Flora of Chester County, Pennsylvania, 1837 (226), said:—"I have never seen it where it did not appeal like an introduced plant." And Chapman in 1860 (442) said:—"Wet places, Florida and northward, apparently introduced." Gattinger, in his Flora of Tennessee, 1901, said:—"E. Tenn. Perhaps from imported stock. Cultivated here and there." Most other authors, especially those dealing with the northern states, have been inclined to treat it as indigenous.

COMMELINACEAE. Spiderwort Family.

About 30 genera and 350 species, mostly tropical.

COMMELINA, Linnaeus.

About 100 species, in temperate and tropical regions. Five or six are known in Alabama, mostly native.

One of them, *C. communis* L., is an occasional weed around gardens. The first definite report of it in the United States seems to be by Dr. Thomas Morong, in the Bulletin of the Torrey Botanical Club (20:469) for December, 1893. He found it in New York and Pennsylvania. Before that it had been confused with other species, and there was also some difference of opinion as to whether it was native or introduced.

PONTEDERIACEAE.

About 6 genera and 25 species, aquatics in temperate and tropical regions.

PIAROPUS, Rafinesque. (*Eichhornia*, Kunth.)

Five or six species, mostly South American. One or two introduced into the United States.

P. crassipes (Mart.) Britton, the water-hyacinth, a very showy plant when it blooms in late summer and fall, often cultivated for ornament, has escaped to sluggish streams near the head of Mobile Bay; and clumps of it can often be seen floating down the bay to ultimate death in salt water, or stranded on the shores to die from lack of water. It is said to be much more of a pest in southern Louisiana; and in some rivers and lakes in Florida it has become a serious obstacle to navigation, and much money has been expended in clearing it away. It first attracted attention as a pest in Florida about fifty years ago, and in Alabama much more recently, not having been mentioned at all by Mohr in 1901.

JUNCACEAE. Rush Family.

Eight genera and about 300 species, widely distributed.

JUNCUS, Linnaeus. *The Rushes.*

About 200 species, widely distributed in the Northern Hemisphere, and found mostly in wet places. About 20 species are known in Alabama, some of them unquestioned natives.

Our commonest one, *J. effusus* L. (divided by some botanists into several varieties), is usually if not always a weed, in ditches, low pastures, etc., nearly throughout the state. Elliott said of it in South Carolina in 1817 (405) "Grows in wet soils; occupies and almost covers rice fields as soon as they are thrown out of cultivation." Darlington said of it in Pennsylvania in 1837 (227):—"Moist low grounds; common. . . . This species, if neglected, is apt to prevail to a troublesome extent in our wet meadows, and low grounds,—forming numerous bunches, or Tussocks. The whole genus is altogether worthless, to the agriculturist." It probably flourishes in pastures, where there is moisture enough, because cattle do not like it.

J. macer S. F. Gray (long called *J. tenuis* Willd.) is common in Alabama and most other states, along roadsides and especially footpaths, either in the open or in woods; as if it benefited in some way by being stepped on. I know of no other plant that has such a preference. It grows also in Europe and other continents, and was probably introduced here long ago. Elliott said of it in 1817 (406) "Grows in wet pastures; very common; remarkable for the strength of its fibre."

J. Torreyi Coville is alleged to be native, but seems to be practically confined to ditches along roads and railroads, especially in the black belt and neighboring regions.

J. validus Coville (with which I may have confused *J. polycephalus* Mx.) is also characteristic of ditches, but is less common than the preceding, though it does not seem to require such fertile soil.

J. bufonius L., known also in Europe and tropical America, and probably introduced, is very characteristic of railroad and roadside ditches, but is less common in Alabama than farther north. I have collected it in Massachusetts and Florida, but do not recall ever seeing it in Georgia. Some Alabama localities noted are in Tuscaloosa, Greene and Clarke Counties. Dr. Mohr knew it only as a small variety (*fasciculatus*) in Mobile County.

A few other species, such as *J. acuminatus*, *diffusissimus*, *scirpoides*, *marginatus* and *aristulatus*, are also seen oftener on damp roadsides than in any natural habitats.

LILIACEAE. Lily Family.

This has been variously subdivided, but is here taken in the broader sense, as we have comparatively few weeds belonging to it anyway. It is a large and widely distributed group, with at least 2,000 species.

ALLIUM, Linnaeus. *The Onions.*

About 300 species, mostly in temperate regions. Four or five species known in Alabama, most of them native.

A. vineale L., the wild onion, introduced from Europe, is a pest in moderately fertile soils in the northern half of the state, in lawns, pastures, fields, etc. When cows eat it it gives their milk and butter a disagreeable taste; and it is hard to eradicate because its bulbs are several inches deep. It seldom if ever blooms, but it is most conspicuous in early spring, when its leaves are green and those of the surrounding grass are dead.

It seems to have invaded the northern states before it did the South. Nuttall said of it in 1818 (1:214) "Naturalized. Now a prevalent and pernicious weed." Darlington said of it in Chester County, Pennsylvania, in 1837 (216):—"This species is a naturalized foreigner; and was formerly so abundant in this County, as to be quite a nuisance. It not only imparted a disgusting flavor to milk, butter, cheese, etc., but seriously injured our flour, and rendered the manufacture of it difficult. Our best farmers, however, have now nearly subdued it, by the improvement of their land, and a judicious rotation of crops."

But it was not known in South Carolina or Georgia in Elliott's time, and probably entered Alabama much later. Chapman said of it in 1883 (656):—"North Carolina. . . . Introduced;" and added nothing more in 1897. Deam, in his *Flora of Indiana*, 1940 (309-310) reports that he found it only in the southern part of the state, and gives some interesting notes on its history and perniciousness.

A. Canadense L., alleged to be native, is a weed in fields and along streets, mainly northward.

NOTHOSCORDUM, Kunth.

About 12 species, mostly in tropical America.

N. bivalve (L.) Britton (*Allium striatum* Jacq.) may be native in damp spots on flat rocks, but it is very common on roadsides and in various other weedy places, in all parts of the state. Blooms in spring.

ORNITHOGALUM, Linnaeus.

About 75 species, natives of the Old World.

O. umbellatum L., the Star-of-Bethlehem, cultivated long ago in old gardens, runs wild occasionally around dwellings, mainly in the northern parts of the state. This, like *Allium vineale*, seems to have attracted attention in the North before it did in the South. Nuttall said of it in 1818 (1:221):—"Introduced; becoming a troublesome and inextinguishable weed in moist meadows, forming exclusive plats. In the vicinity of Philadelphia." Darlington said of it in Chester, County, Pennsylvania, in 1937 (219):—"This foreigner has escaped from the gardens, and has become a grievous nuisance on many farms. Although it rarely perfects its fruit, the bulbs are propagated laterally with great rapidity; and are extremely difficult to extirpate." But it was not mentioned by Elliott, Chapman, or Mohr. Deam's account of it in Indiana (315) agrees pretty well with what Nuttall published 122 years before. He said among other things:—"The plant grows in such masses that it crowds out all other vegetation, and where it is found it should be exterminated at once."

MUSCARI, Miller.

About 40 species, mostly in the Mediterranean region. Two or three have escaped from cultivation in the United States.

M. botryoides (L.) Mill. Grape-hyacinth. Much the same remarks apply to this as to the preceding, except for the quotations.

HEMEROCALLIS, Linnaeus. *The Day-lilies*.

About six species, natives of Europe and Asia.

H. fulva L. Much the same applies to this too, except that it is much commoner in cultivation than the two preceding, though it does not seem to stray far from dwellings.

Nuttall said of it in 1818 (1:219):—"Naturalized in moist meadows around Philadelphia, and also in secluded situations on the banks of the Schuylkill. I have introduced it into the American Flora to mark its future progress, which is already such, as easily to impose upon a stranger for an indigenous plant." Darlington said of it in 1837 (225):—"Wet meadows; about houses: frequent. . . . This foreigner is frequent in gardens; whence it has strayed, and is becoming gradually naturalized, in several neighborhoods." It was not mentioned by Elliott, Chapman, or Mohr; but Small in 1933 (294), extended its range southward to North Carolina and Texas, and said:—"A vigorous colonizer, and often a weed, crowding out native vegetation in meadows, and on banks and edges of woods." In the summer of 1940 I photographed a large colony of it in a vacant lot in the western corner of Arlington County, Virginia. Deam (308) says "It never produces seed naturally in this country and propagates entirely by its many tuberous roots." When it is once established, nothing can compete with it; hence it forms pure stands."

YUCCA, Linnaeus.

About 18 species, all North American, mostly in the southwestern United States and Mexico. Two species known in Alabama, both native, but sometimes weeds.

Y. filamentosa L. Bear-grass. Seems to be native on wooded bluffs, especially northward, but commoner in old fields, where it is very showy when it blooms, in early summer. (There may possibly be more than one species involved, though). In both habitats it has pretty good protection from fire, which seems to be important for this whole genus (and for the great majority of weeds, as stated in the introductory chapter).

Y. aloifolia L. Spanish bayonet. Native along the coast, cultivated for ornament in the interior, and occasionally escaping to roadsides in the black belt, and perhaps elsewhere.

SMILACACEAE. Smilax Family.

Four genera and about 250 species, mostly thorny woody vines, in temperate and tropical regions.

SMILAX, Linnaeus.

About 220 species, mostly in tropical America and Asia.

About ten species in Alabama, all presumably native, but some with weedy tendencies. The name "bamboo" has been applied locally to some of them. Like other woody vines, they seem to require protection from fire.

S. glauca Walt. seems to be native in dry woods, that are not burned too often, but is common in thickets and old fields, practically throughout the state. Elliott in 1824 (2:697) ascribed it to rich soils, and Chapman in 1860 (476) to margins of swamps; but here it seems to prefer poor soils and worn-out fields, something like the sassafras bushes referred to farther on. Deam found it in similar habitats in Indiana, and remarked (327):—"When it becomes established in cultivated ground, it is difficult to eradicate on account of its deep, tuberous rhizomes which when broken, send up new stems."

S. lanceolata L., the "wild smilax," extensively used for winter decorations, is native in rich woods, mostly in the coastal plain, but also often climbs over bushes and trees on roadsides and edges of fields. Shipping it north for decorative purposes has been an industry of some importance in Conecuh and neighboring counties for over fifty years.

S. rotundifolia L. (if identified correctly) is common in woods, especially near streams, and is often found in weedy thickets also. Darlington said of it in Pennsylvania in 1837 (566):—"This rugged shrubby vine is often abundant in moist grounds, forming impenetrable thickets,—and is often a great annoyance to the woodmen, when employed in clearing out such places."

One or two smaller species, perhaps referable to *S. Bona-Nox* and *S. Pseudo-China*, which seldom grow more than waist-high, and which I have never seen in bloom, are common in thickets, etc., and very annoying to persons walking through them. They even grow in yards in Tuscaloosa, and probably other cities.

AMARYLLIDACEAE. Amaryllis Family.

About 70 genera and 800 species, mostly in warm regions.

NARCISSUS, Linnaeus.

About 25 species and many horticultural varieties and hybrids, mostly European. Several cultivated for ornament, and a few escaping.

N. poeticus L. (White narcissus.) Escaped from cultivation near dwellings in Colbert County, and perhaps elsewhere. Blooms in spring.

Deam said of its occurrence in Indiana 1940 (1036) "This species has been freely planted about habitations and will persist for a long time but there is no evidence that it has become established." And this probably describes the situation in Alabama pretty well.

Some of the yellow-flowered species (daffodils) are said to run wild on roadsides in southeastern Virginia, but I have seen no indication of such a tendency in Alabama yet.

IRIDACEAE. Iris Family.

About 60 genera and 1,000 species, widely distributed.

BELAMCANDA, Adanson. (*Gemmingia*, Fabr.; *Pardanthus*, Ker.)
One species, native of China.

B. Chinensis (L.) D.C. Blackberry lily. (So called because its clusters of shiny black seeds in the open pods resemble blackberries.) Cultivated in old gardens, and often escapes to roadsides, especially in the northern parts of the state, like *Hemerocallis*. Deam (333-334) found much the same state of affairs in southwestern Indiana.

One or more species of *Iris*, all native, are occasionally found on marshy roadsides, etc.

SAURURACEAE. (Formerly included in Piperaceae, the Pepper family.)

Three genera and four species, in North America and Asia.

SAURURUS, Linnaeus. (*Lizard's tail*.)

Two species, the other Asiatic.

S. cernuus L. is native in various kinds of swampy places, mostly in the coastal plain, but is also found along ditches, etc., and has lately become somewhat of a pest in the backwaters of the Tennessee River dams. (See Hall 1940, in bibliography).

SALICACEAE. Willow Family.

Two genera and over 200 species, in temperate regions.

POPULUS, Linnaeus. *The Poplars.*

About 30 species, trees, in the Northern Hemisphere. Two native, one introduced, and one or two others cultivated in Alabama.

P. deltoides Marsh. (*P. balsamifera* L.?), the common cottonwood, grows naturally on banks of rivers and large creeks, especially in the most fertile regions, and is now common along ditches in and near the black belt, making it one of our commonest weed trees, next to the pines, especially in the central sections of the state.

P. alba L., the European white or silver-leaf poplar, a small or medium-sized tree planted for shade, mostly in the northern half of the state, runs wild around some of our cities and towns. It spreads by suckers from the roots, and is somewhat objectionable for that reason. Deam (353) found it behaving similarly in all parts of Indiana.

SALIX, Linnaeus. *The Willows.*

About 200 species, mostly in the North Temperate zone, many pretty far north. All are trees or shrubs, but some of those in arctic regions and on high mountains grow only an inch or two tall. Alabama has about four species, small trees and shrubs.

S. nigra Marsh., our commonest and largest species, abounds along streams of all sizes, apparently preferring soils rich in potash but not in nitrogen. It is also common along ditches, in low pastures, and on mud flats built up by washings from brown iron ore mines.

BETULACEAE. Birch Family.

Two genera and about 45 species, mostly in the Northern Hemisphere.

ALNUS, Linnaeus. *The Alders.*

About 15 species, in the Northern Hemisphere and in the Andes. One in Alabama.

A. rugosa (DuRoi) Koch (*A. serrulata* Willd.) is the commonest large shrub in the state. It is common along creeks and branches, except in the extreme south, but is not found much on river banks, except in springy places on bluffs, above ordinary high water. It also grows in wet pastures and along ditches, much like the willow, with which it often associates. Darlington said of it in Pennsylvania in 1837 (526):—"This is a shrub of little or no value,—and is often rather troublesome along swampy rivulets, in meadows, &c."

Small specimens of our common birch, *Betula nigra* L., often come up among second growth in river and creek bottoms, but it should hardly be stigmatized as a weed for that reason.

URTICACEAE. Nettle Family.

About 40 genera and 550 species, widely distributed.

URTICA, Linnaeus. *The Nettles.*

About 30 species, widely distributed in cool regions. Four credited to Alabama, all or nearly all weeds.

U. procera Muhl, (formerly called *U. gracilis* Ait.), an alleged native, reported by Mohr to grow throughout the state, on borders of swamps and waste places, I have not met with anywhere in the South, and would judge to be rare. See Deam 1940 (398) for notes on its status in Indiana.

U. chamaedryoides Pursh, another supposed native, grows among shale bluffs a few miles up the river from Tuscaloosa, but in places not free from the suspicion of weediness. It is seen occasionally in shady places on the University campus, in spring.

Two other species, introduced from Europe, are reported by Mohr from on ballast in Mobile County, and one locality far inland each.

For the benefit of readers who may wonder about the status of these plants in Alabama, it may be appropriate to mention here two plants well known for centuries, that were formerly put in the Urticaceae, but are now put by Small and perhaps others in a separate family, the Cannabinaceae. Both have been reported from Alabama, but can hardly be regarded as members of our flora.

Cannabis Indica, or *sativa*, the hemp plant, has received much attention in recent years as the source of a dangerous and demoralizing narcotic, hasheesh or marijuana. Some newspaper accounts might lead readers to believe that it could be found, or at least cultivated, almost anywhere in the United States. Darlington in Chester County, Pennsylvania, in 1837 (565) knew it only as a cultivated plant, and said it had become rare there. Dr. Mohr reported it as a rare ballast plant in Mobile County, but I have never seen it growing south of Kentucky, where it was formerly cultivated on a large scale for its fiber (before anybody there thought of smoking it),²⁷ and has run wild to some extent on roadsides.

Deam (397) ascribed some of the escaped specimens in Indiana to the fact that its seeds are now commonly used in commercial bird foods, and thus thrown out when cages are cleaned.

Humulus Lupulus L., the hop vine, is cultivated extensively in some of the northern states, and runs wild occasionally, but I have never seen it in the South. Dr. Mohr found it near dwellings in Cullman County, where it might have been cultivated as a porch vine or for use in beer, by some German settler from the North, and escaped. But the problem is complicated by the fact that some botanists believe that we have both a native and an introduced species of *Humulus* in the United States. Nuttall said of *H. Lupulus* in 1818 (2:237) "Abundant on the banks of the Mississippi and Missouri," with no hint that it might not be indigenous. Later he described it as *H. Americanus*, but that seems to have been ignored by nearly all American botanists, until Deam revived it in 1940 (396-397, 1041). Elliott in 1824 (2:695) said of *H. Lupulus*, "Grows in the mountains of Carolina;" and Chapman in 1860 (414) "Low grounds along the mountains, Georgia, and northward." Darlington said of it in Pennsylvania in 1837 (564):—"This plant—the only known species of the genus,—is undoubtedly indigenous here,—as I have often seen both staminate and pistillate ones growing in the thickets along the Brandywine." One might infer from the distribution given in Small's Manual, 1933 (436) that it could be found almost anywhere in the eastern half of the United States.

²⁷For a graphic description of hemp culture in Kentucky see the first chapter of James Lane Allen's novel, "The reign of law" (1901). A botanist who reviewed it soon after it was published expressed the wish that that chapter could be reprinted for distribution among botanists.

ULMACEAE. Elm Family.

About 13 genera and 140 species, widely distributed.

CELTIS, Linnaeus. *The Hackberries.*

About 60 species, in temperate and tropical regions.

The North American species, known as hackberry in Alabama and westward, and sometimes as sugar-berry farther east, are variable and none too well defined, but we seem to have at least two in Alabama, one a large or medium-sized tree, presumably **C. Mississippiensis** Bosc., and the other a small tree or shrub, which has been called **C. pumila** Pursh and *C. Georgiana* Small.

The former is native along rivers and creeks in rich soils, and is also often cultivated for shade. It has weedy tendencies, much like the cottonwood previously discussed, and often springs up in vacant lots and along fence-rows, probably in many cases from seeds brought by birds from cultivated trees.

The latter may be native on some rocky banks and cliffs, but is commoner in sandy old fields and on roadsides, especially in the central parts of the state.

MORACEAE. Mulberry Family.

About 55 genera and 1,000 species, in temperate and tropical regions.

MORUS, Linnaeus. *The Mulberries.*

About ten species, in the northern hemisphere. One native and another cultivated in Alabama.

M. rubra L. (Red) Mulberry. Grows in rich woods and bottoms, throughout the state, but nowhere abundant. Also occasionally in second-growth woods and other weedy places.

M. alba L., native of China, where it is the principal food of the silk-worm, has run wild a little in Mobile county, according to Mohr. Elliott said of it in 1821 (1:574):—"This tree, a native of China and Persia, is now entirely naturalized in this country. Around the plantations in the low country it occurs, I think, more frequently than our native species." That

was doubtless due to early attempts to produce silk there. Chapman in 1860 (415) said "Around dwellings. Introduced;" without indicating its distribution.

PAPYRIUS, Lamarck. (*Broussonetia*, L'Her.)

Four species, natives of Asia. One cultivated and escaped in the United States.

P. papyrifera (L.) Kuntze, the paper mulberry, has been widely cultivated for shade in the poorer sections of our cities and rural districts, but it is an irregular and rather unsightly tree, and has little to recommend it except rapid growth. It runs wild around dwellings, warehouses, etc., and spreads by suckers from the root.

TOXYLON, Rafinesque. (*Maclura*, Nutt.)

One species, American.

T. pomiferum Raf. (*Maclura aurantiaca*, Nutt.), known as Osage orange, mock orange, or bois d'arc ("bodark"), is supposed to be native near the Red River in Oklahoma and Texas. It has been widely cultivated for hedges and roadside shade in the eastern states, especially in fertile regions like the Tennessee Valley and black belt, and sometimes runs wild in such regions.

This was described by Nuttall in 1818 (2:233-235), under the name given above, when he was probably unaware that Rafinesque's description under an entirely different name had appeared the year before.

PLATANACEAE. Plane-tree Family.

One genus, as follows.

PLATANUS, Linnaeus.

(Called *Plane-trees* in the Old World, and usually *Sycamores* in America)

About eight species, in the North Temperate Zone. Only one in the eastern United States, but a few others in the West.

P. occidentalis L. Sycamore. (Often called buttonwood in New England.) Native along rivers and creeks, more in the northern than in the southern half of the state; but also springs up along very small streams and in partly cleared or second-growth woods, which could not have been its natural habitat. It is not common in a truly wild state near the coast, but may have been introduced in the low country of South Carolina before Elliott's time. He said of it in 1824 (2:620) "Grows in damp fertile soils," and observed that it was rather scarce in the low country. It is more or less weedy in the North too, for Darlington gave its habitat in southeastern Pennsylvania in 1837 (542) as "Banks of streams! roadsides, &c. frequent."

POLYGONACEAE. Buckwheat Family.

About 40 genera and 800 species, widely distributed.

RUMEX, Linnaeus. (including *Acetosella*, Raf.) *The Docks, Sorrels, etc.*

About 150 species, mostly in Northern Hemisphere. Alabama has about a dozen, all weeds, though some are alleged to be native.

R. crispus L., one of the docks, introduced from Europe, is probably the commonest. It is a perennial, with a large tap-root, and therefore would not have much chance of growing in cultivated fields, but it is found on roadsides, etc., throughout the state, apparently more in towns than in the country.

Darlington said of this in Chester County, Pennsylvania, in 1837 (236):—"All the species of *Rumex*, in this County, are introduced; and are rather troublesome plants. The radical leaves of this are often collected, in the spring, and used as early 'greens.'"

Some notes on its good and bad properties can be found in Deam's *Flora of Indiana*, 1940 (406-407).

R. obtusifolius, another European species, closely related to the preceding, has about the same habitat and distribution, but is less common. Darlington said of it:—"This is even more worthless than the preceding; but not quite so prevalent."

Much the same can be said of *R. pulcher* L., *R. altissimus* Wood, and perhaps one or two other less common species. These mostly bloom in late spring, and their stems die down in summer, but the leaves may be green all winter.

R. hastatulus Baldw., one of the sorrels, is alleged to be native, but seems to be always a weed. It abounds in sandy fields, especially in the coastal plain, and is conspicuous in spring when its pinkish achenes are ripening. It is very frequently associated with *Linaria Canadensis* (discussed on a subsequent page).

R. Acetosella L., the common northern (sheep) sorrel, introduced from Europe, resembles the preceding, except that it is smaller, and its achenes inconspicuous. It grows sparingly on roadsides and in vacant lots and worn-out fields, mostly in the northern half of the state. In the North it is often regarded as an indication of acid soils. See Elliott, 1817 (1:415), Darlington, 1837 (237), Chapman, 1860 (386), and Deam, 1940 (405).

POLYGONUM, Linnaeus.

This formerly included over 200 species, but other genera have been split off from it, probably justly so, and as now restricted it has about 100 species, of wide distribution. Alabama has three or four, but only one or two native.

P. aviculare L., of Old World origin, grows along roads and paths, sometimes in gardens, mostly in the northern half of the state; and it is still commoner in the northern states. In Darlington's time (1837) some botanists seem to have considered this species native; but he disputed that, saying of the occurrence in southeastern Pennsylvania (247):—"About houses, gardens, foot-ways, &c. common. . . . This has every appearance of being an introduced plant, in all its localities here."

Much the same can be said of *P. erectum* L., except that it is less common here. One or two others have been reported introduced near the coast, but they may not be permanently established.

PERSICARIA, Adanson. (Formerly included in *Polygonum*.)

About 125 species, widely distributed.

Alabama has about a dozen, mostly weeds. They have not been carefully studied, but the commonest seem to be *P. punctata* (Ell.) Small (*Polygonum acre* HBK), commonly known as smartweed, in damp places near houses and barns, and *P. Pennsylvanica* (L.) Small, or one or more related species, in fields and gardens.

BILDERDYKIA, Dumortier. (Formerly included in *Polygonum*, later separated as *Tiniaria*.) *The Climbing Backwheats*.

About eight species, in North America and Asia.

Alabama has two or three, much alike. The commonest is probably *B. cristata* (Engelm. & Gray) Greene, which is perhaps native, but is found mostly climbing over bushes on roadsides and in damp thickets.

What appears to be *B. dumetorum* (L.) Dum., commonly supposed to be a native of Europe, grows in weedy places near the Warrior River in Tuscaloosa, and doubtless in many other places. But we may also have *B. scandens* (L.) Greene, which is so close to this that it is often treated as a variety, but is supposed to be native. Elliott said of it in 1817 (1:459-460):—"Grows in cultivated places, along fences, &c." Deam found two or three species referable to this genus in Indiana (417-418), mostly in weedy habitats.

BRUNNICHIA, Banks.

Two species, the other in Africa.

B. cirrhosa Banks, a woody vine apparently with no common name, is native along rivers and creeks in the coastal plain, and often runs wild along roads and railroads in damp rich soils, especially in and near the black belt. In Tuscaloosa in recent years it has even been growing on fences on the University campus.

CHENOPODIACEAE. Goosefoot Family.

About 75 genera and 550 species, widely distributed; includes some important food plants (such as the beet, sugar beet and spinach), but many weeds, some very pestiferous.

CHENOPODIUM, (*Pigweeds*, etc.)

(Including *Ambrina* and *Botrydium*, of Small's Manual.)

About 60 species, mostly in the Old World. Alabama has about ten, all introduced weeds.

C. album L. (pigweed, or lamb's quarters) is fairly common in gardens, around barn lots, etc. Though unattractive in appearance, chickens are very fond of it, and it has been recommended for human food when cooked.

C. amaranticolor Coste & Reyn. differs from the preceding in being usually taller and brighter green, with many of the upper leaves tinged with bright red. It is much less common.

C. ambrosioides L. (Jerusalem oak, Mexican tea, or wormseed) prefers rich soil near houses and barns. It is strong-scented when bruised, and some people assert that sprigs of it laid on top of growing cabbages will keep worms off. Its seeds are used medicinally.

C. anthelminthicum L. has been regarded by some authors as a distinct species from the preceding, and by others as a mere variety, and in Small's Manual, 1933, it is not mentioned at all. Elliott in 1817 (1:331) regarded it as indigenous. But whether distinct or not, it has essentially the same habitat and properties as *C. ambrosioides*, and is always a weed.

Darlington said of *C. ambrosioides* in Pennsylvania in 1837 (16):—"All our Chenopodiums are believed to be introduced, at least into this region. They are a homely family, and regarded rather as weeds. This species . . . I think, is

frequently mistaken for the real *C. anthelminticum*. It is by no means common, as yet, in Chester County. And of *C. anthelminticum* he said on the next page:—"This is quite rare, here,—and scarcely naturalized; but is to be met with, in and about gardens. Mr. Elliott seems to consider it indigenous, in the South." References to some recent studies of this group can be found in Deam, 1940 (421-422).

AMARANTHACEAE.

About 40 genera and 475 species, widely distributed. Includes more weeds than useful plants.

AMARANTHUS, Linnaeus.

About 60 species, mostly in the Old World. Alabama has about six, all weeds, two or three of them known only as ballast plants.

The commonest one is *A. spinosus*, L., commonly known as "careless," which grows mostly in gardens and around barns, and is fairly common throughout the state. Blooms in late summer. Said to be native of India, but Mohr attributed it to tropical America. It was not known to Elliott in South Carolina in 1817, but Nuttall listed it in 1818 without definite locality, and is appeared in Pennsylvania not long afterward, according to Darlington, who said of it in 1837 (527):—"This is undoubtedly an introduced plant; and a vile nuisance it is, wherever it prevails. It is abundant in the unimproved streets and alleys, of Philadelphia; but is yet rare in Chester County. It was collected near West Chester in 1829, by D. Townsend, Esq."

Some interesting notes on it can be found in Deam, 1940 (429).

A. retroflexus L., or *A. hybridus* L., or both, perhaps of tropical American origin, have about the same distribution.

A. blitoides Wats., probably of European origin, grows in vacant lots in Birmingham, if not other cities.

ACHYRANTHES, Linnaeus. (*Alternanthera*, Forsk.)

About 45 species, mostly tropical. Alabama has about four, all weeds, some known only on ballast.

A. repens L., a small prostrate plant, probably native of tropical America, grows along the streets of Tuscaloosa, Mobile, and perhaps other cities in the coastal plain. In Tuscaloosa it does not seem to spread much from one street where I first observed it in 1910. Elliott's description of its habitats in 1817 (1:309) is quite typical. He said:—"Grows in dry soils, along walls,

fences, and the edges of roads, streets, &c., in places much trodden. Common in the maritime districts of Carolina and Georgia. Flowers March—October."

A. philoxeroides (Mart.) Standley, a native of South America, is called "alligator weed" in southern Louisiana, where it is a pest in bayous, something like the water hyacinth. This seems to be a rather recent introduction. It was not listed by Chapman in 1897, but Mohr in 1901 (492), under the name *Telanthera philoxeroides acutifolia*, recorded it as completely filling the mouth of a creek near Mobile in September, 1897. Small in 1903 gave its distribution as "waste places, South Carolina to Florida and Louisiana." Recently it has appeared in the Tennessee River backwaters, where it has spread and interfered with mosquito control,¹⁸ but it said to have been checked.

FROELICHIA, Moench.

About 12 species, in the warmer parts of America. Two in Alabama.

F. Floridana (Nutt.) Moq. Supposed to be native, but known also in the West Indies and Mexico, and may be introduced. Dr. Mohr found it on the east shore of Mobile Bay, and I have seen it in dry sandy fields in Autauga, Bullock and Dallas Counties. Blooms in late summer.

It was originally described by Nuttall in 1818 (2:79), from "On the banks of the Altamaha, Florida," presumably meaning the sand-hills along the Altamaha River not far from its mouth, in Georgia. Elliott (2:155) found it about the same time "very abundantly on the high pine ridges between the Flint and Chatahouchie rivers along the Federal road," presumably in or near what is now Taylor County, Georgia. It is probably native in both places, and on sandhills along the western edge of Wheeler (formerly part of Montgomery) County, Georgia, but it appears to be a weed in most places where I have seen it in Georgia¹⁹ and Alabama.

Around the turn of the century this species was supposed to range north to Minnesota and west to Colorado, but Small in 1903 made the western form a new species, *F. campestris*, and put the western limit of *F. Floridana* in Mississippi. According to Lowe's flora of Mississippi, 1921 (140) it is known in that state only from the immediate vicinity of the coast.²⁰

F. gracilis (Hook.) Moq. Supposed to be native in the Great Plains region. Probably a recent arrival in the eastern states, for it is not mentioned in Small's Manual, 1933. Deam's first record for Indiana is along a railroad about four miles south of Vincennes, and on Aug. 4, 1941, I saw it from a train in the yards of the same railroad in Vincennes. In September, 1935, I saw it in cindery railroad yards in Tuscaloosa and Montgomery.

¹⁸See Penfound, 1940, in bibliography.

¹⁹See Bull. Torrey Bot. Club, 28:427. 1900; Ann. N. Y. Acad. Sci. 17:243. 1906.

²⁰For notes on the reported occurrence of these plants in Indiana see Deam, 1940, pp. 432, 1043-1044.

PHYTOLACCACEAE. Pokeweed Family.

About 22 genera and 110 species, mostly tropical.

PHYTOLACCA, Linnaeus.

P. Americana L. (*P. decandra* L.) Pokeberry. Supposed to be confined to the United States, and therefore native, except that has been introduced into southern Europe (according to Mohr). It is always a weed, but is thought by some to have been here before the white man, and its origin is a puzzle. It grows in various kinds of weedy places, usually near dwellings, and ranges throughout the state, and nearly throughout the eastern United States.

Although the root is poisonous (and used in medicine), the young shoots are used for greens by country people, as was noted over 100 years ago by Darlington (283). There are some interesting notes on the occurrence and uses of this species in Indiana on pages 433-434 of Deam's *Flora of Indiana*, 1940.

P. rigida Small, which differs in having its racemes erect or nearly so, even in fruit, has been seen once or twice in southwestern Alabama, and as far inland as Montgomery, but is commoner in Florida.

NYCTAGINACEAE (also called ALLIONIACEAE).

About 25 genera and 350 species, mostly in the warmer parts of America. Some are ornamental, but few if any are useful in any other way.

BOERHAAVIA, Linnaeus.

About 50 species, mostly tropical. Two reported from Alabama.

B. erecta L., an odd and rather neat-looking herb about knee-high, apparently with no common name locally, probably introduced from the tropics, grows along railroads and in waste places of various kinds, mostly in the warmer parts of the state, where it blooms through the latter part of the summer.

Elliott said of it in 1816 (1:42):—"Grows in dry and sandy soils. Around Beaufort, common. Perhaps imported, now completely naturalized."

Another species was found by Dr. Mohr on ballast near Mobile.

AIZOACEAE (or TETRAGONIACEAE).

About 22 genera and 500 species, mostly tropical.

MOLLUGO, Linnaeus. (*Carpet-weeds*).

About 12 species, mostly tropical. One in Alabama.

M. verticillata L. Probably introduced from the tropics. A little plant of prostrate habit, therefore growing where it is not crowded by other vegetation, as around dwellings, on roadsides, and in fields. Widely scattered over the state but not abundant. Blooms all summer.

Elliott said of this in 1816 (1:183) "Very common in cultivated ground," without specifying where. Beck, writing about it in 1826,²¹ gave a different version, namely, "On the prairies in Illinois and Missouri—common." Torrey and Gray, writing about it in the next decade (1:176), said of it, "Barren places throughout N. America!" Chapman in 1860 (48) said "Cultivated ground, common. Introduced." Deam (434) gives a variety of habitats for it in Indiana.

PORTULACACEAE. Purslane Family.

About 20 genera and 200 species, most numerous in the warmer parts of America.

PORTULACA, Linnaeus. (*Purslane*.)

About 20 species, mostly American. None native in Alabama.

P. oleracea, L. "Pusley." Widely distributed over the world, but perhaps originally from southern Europe. Grows mostly in gardens and along city streets; apparently less common now than formerly. Widely distributed over the state. Blooms in summer.

Some interesting observations on this species have been published in old books. Nuttall said of it in 1818 (2:6):—"Indigenous on the saline and denudated plains of the Missouri. A plant common to every quarter of the world." Elliott, in 1821 (1:534) said:—"Grows every where in rich soils; one of the domestic plants that appear to accompany man in most climates." Darlington in 1937 (314) quoted Nuttall's observation, and added:—"but it is undoubtedly, I think, an introduced plant here. It is sometimes, though rarely, used as a pot-herb; and is rather a troublesome weed in our gardens."

²¹Am. Jour. Sci. 10:262. 1826.

Torrey and Gray in 1838 (1:196) said:—"Cultivated and waste places, nearly throughout N. America; introduced: indigenous on the saline plains of the Missouri, according to Nuttall & Dr. James!" Chapman in 1860 (44) said "Cultivated ground everywhere." Deam in 1940 (435) notes that it is much less common in Indiana now than formerly; which is contrary to the usual tendency of weeds.

P. pilosa L. A tropical species, occasionally cultivated for ornament, has sparingly escaped in Autauga, Barbour, Mobile, and perhaps other counties. Blooms in summer.

CLAYTONIA, Linnaeus.

About ten species, North American. One in Alabama.

C. Virginica, L. (Called "spring-beauty" in northern books.) A succulent herb with pink flowers, blooming in spring and disappearing before summer. Grows naturally in rich shady woods in the northern half or two-thirds of the state, but also spreads to lawns that are not mowed too often, in Tuscaloosa if not elsewhere. My first acquaintance with it was in vacant lots and along streets, in rich and partially shaded soil, in New York City in the spring of 1900.

ALSINACEAE. Chickweed Family.

About 32 genera and 500 species, mostly in temperate regions.

SAGINA, Linnaeus.

About ten species, in the northern hemisphere. One or two in Alabama.

S. decumbens (Ell.) T. & G. (including the var. *Smithii*, which does not seem to differ much.²²) Alleged to be native, but always a weed. A diminutive annual, of fields and roadsides, widely distributed over the state, but not abundant. Blooms in spring and disappears in summer.

Elliott, when he described it in 1821 (1:523-524), said:—"Grows in fields and pastures. Very common." Torrey and Gray (1:177) said:—"In fields, &c., Canada! to Louisiana! Introduced? Also on the Pacific coast." Deam (441) thought it appeared native in some parts of Indiana and introduced in others.

²²However, see note on a plant taken for var. *Smithii*, in Bull. Torrey Bot. Club, 32:465-466. 1905.

SPERGULA, Linnaeus. (*Spurrey*.)

About three species, natives of Europe and Asia. One introduced in Alabama.

S. arvensis L. A spring-flowering annual, said to be valuable for early pasture. Abundant in sandy low fields in Mobile County, according to Mohr. I have never identified it, perhaps not having been there at the right season. Elliott said of it in 1821 (1:523):—"Grows in cultivated grounds, in oat-fields not uncommon. An exotic becoming naturalized. Flowers April-May." It is now supposed to range pretty well over the United States, but Deam found so few stations for it in Indiana that he put it in his list of excluded species (p. 1045).

ALSINE, Linnaeus. (*Stellaria*, L.) *The Chickweeds*.

About 75 species, in temperate regions. Two species and a variety have been credited to Alabama, one of them a cosmopolitan weed, the others native.

A. media L. Common chickweed. Probably introduced from Europe; now widespread over the United States. Common near dwellings, especially in towns. Blooms in winter and spring, disappears in summer.

This common weed does not seem to have been known to Elliott, strange to say; and possibly it had not reached the territory he was familiar with at that time. But it was doubtless already common in the North in those days. Darlington said of it in Pennsylvania in 1837 (274):—"Gardens, and cultivated lots: common. Fl. March-Dec. Fr. May-Dec. . . . This foreigners is extensively naturalized. It is a hardy plant, and when the winters are mild, may be found in flower in every month of the year." Torrey and Gray, in the following year, said of it (1:183):—"Waste places throughout the United States! California and N. W. America. Introduced." Chapman in 1860 (50) said:—"Yards and gardens, March and April. Introduced." Deam (438) says it is an annoying weed about habitations in Indiana, but sometimes appears native in woodland.

ARENARIA, Linnaeus.

This genus is variously subdivided, and different authorities do not agree on its limits. The species are most numerous in cool regions. In its narrowest sense the genus is represented in Alabama by one weed and one species that appears to be native.

A. serpyllifolia L. A small spring annual, native of Europe or Asia. Not common in Alabama, but grows mostly along roads and railroads. Dr. Mohr thought it appeared native in Jackson and Madison Counties, but he

might have mistaken some other species for it. I have seen it only in decidedly weedy places, such as along railroads, in and around Tuscaloosa and between Faunsdale and Uniontown.

Elliott in 1821 (1:519) attributed it to dry pastures, without specifying where. Darlington in 1837 (276) said:—"Dry, sandy banks, fields, &c. frequent. . . . This is probably an introduced species,—now extensively naturalized. Torrey and Gray in 1838 (1:182) said of it:—"Sandy fields, Massachusetts! to Georgia! Introduced." Chapman in 1860 (49) attributed it to "Waste places, Florida and northward." Deam (441) expressed the belief that it would be found on railroad ballast in every county in Indiana.

CERASTIUM, Linnaeus. (*Mouse-ear Chickweeds*.)

About 50 species, in temperate regions. Two or three in Alabama.

C. viscosum L. (or **C. vulgatum** L., or both). A common European weed, around towns, on roadsides, etc. Blooms in spring and dies in summer.

Darlington in 1837 (278) found both species in pastures, etc., in southeastern Pennsylvania, and had considerable difficulty in distinguishing them, as have many other botanists, before and since (including the writer).

C. nutans Raf. (*C. longipedunculatum* Muhl.) is supposed to be native, but grows in places that are more or less weedy, such as woods near dwellings. I have collected it in Lauderdale County.

CARYOPHYLLACEAE. Pink Family.

About 20 genera and 600 species, widely distributed, mostly in temperate regions. Several cultivated for ornament.

SAPONARIA, Linnaeus. *The Soapworts.*

About 35 species, native in the Old World. One in the eastern United States.

S. officinalis L. (Bouncing-bet.) Scattered along roads and railroads, mostly near towns, in northern Alabama, but much less abundant here than in New England, where it may have been originally cultivated for ornament. Blooms in summer.

Nuttall said of this species in 1818 (1:286):—"Introduced, but now abundantly naturalized. Elliott in 1821 (1:514):—"A foreign plant, now completely naturalized in the upper districts of Carolina and Georgia. Flowers through the summer." Darlington said of it in 1837 (272):—"About gardens, through the summer." An introduced plant, and often some-

what troublesome in gardens." Lowe in 1921 (142):—"Escaped from gardens all over the state" (Mississippi). Deam in 1940 (449) characterized it as an obnoxious weed in sandy soils in Indiana.

SILENE, Linnaeus. (*Catchflies, or Campions.*)

About 250 species, mostly in Europe. Alabama has about six unquestioned native species and one weedy one, besides another reported on ballast near Mobile.

S. antirrhina L. An alleged native (though reported also from Mexico, and might have come from there), but never anything but a weed with us. Pretty widely distributed over the state, on roadsides, etc., blooming in spring and soon dying. Differs from all our other weeds in having rings of brownish sticky material, like fly-paper, on the stems between the upper joints, which would prevent ants from climbing up to the flowers. But some foreign species have the same thing, and others, including some of ours, have sticky stems and foliage, whence the English name, "catchfly."

Deam (447) has an extended discussion of its distribution and history in Indiana.

AGROSTEMMA, Linnaeus. (Formerly included in *Lychnis*.)

Two species, natives of Europe and Asia. One in Alabama.

A. Githago L. (Corn-cockle of Europe, and northern books. Also sometimes known as tare.) On roadsides, etc., scattered, not common. Farther north, and in Europe, it is a common weed of grain fields, and its seeds become mixed with those of wheat, etc. Blooms in early summer.

Nuttall said of it in 1818 (1:29):—"Naturalized in corn-fields [presumably meaning grain fields] as in Europe." But it perhaps was not known in the South in those days, for it is not mentioned by Elliott. Darlington said of it in Pennsylvania in 1837 (281):—"Cultivated fields; chiefly among wheat and rye: frequent. . . . This foreigner, although diligently rooted out by all neat farmers, maintains its ground obstinately in our wheat fields." Torrey and Gray in 1838 (1:194) said:—"In cultivated fields. . . . Introduced from Europe." Chapman must have had a record of it from some southern state in 1860, for he said of it (52):—"Grain fields. Introduced." Deam said of it in Indiana in 1940 (444):—"It was formerly much more common than it now is because improved threshing machines separate it from the grain."

RANUNCULACEAE. Crowfoot (or Buttercup) Family.

About 35 genera and 1,100 species, widely distributed in cooler regions.

DELPHINIUM, Linnaeus. The Larkspurs.

About 125 species, in the North Temperate zone. Many more in the western than in the eastern United States. Alabama has three native species, and one European one escaped from cultivation.

D. Ajacis L. Commonly cultivated for ornament, blooming in early summer, and later dying. The flowers are normally deep blue, and single, but there are also pink, white and double varieties. The single blue form is often found growing spontaneously outside of the yards where it is cultivated, but does not seem to spread much. The most luxuriant wild growth I ever saw was in a rocky pasture about a mile east of Lebanon, the old county-seat of DeKalb County, on May 29, 1942. There was no house near it, but there may have been one years before. Associated with the larkspur were a few specimens of *Ruta graveolens*, the European rue, an old-fashioned garden herb, doubtless a relic from the same dwelling, wherever it was.

D. Consolida L., another cultivated species that does not differ much, has been more or less confused with this, and some of the observations on it as a wild plant in the older books may apply to *D. Ajacis*. See Deam, 1940 (458-459, 1048).

MYOSURUS, Linnaeus. (Mouse-tail.)

About five species, mostly European. One in Alabama.

M. minimus L. A diminutive annual of odd appearance, appearing in damp fields in spring and disappearing in summer. Fairly common in the western part of the Tennessee Valley, also occasional in the black belt. Presumably introduced from Europe. It was not listed by Nuttall in 1818, and the first report of it from the United States seems to have been made by Rafinesque in 1819.²³ He reported it from near Hopkinsville, Kentucky, and thought it differed a little from the European plant, so proceeded to describe it as a new species; which however does not seem to have been accepted by subsequent writers. Elliott in 1821 (1:582) said that it was found by Dr. Leavenworth at Augusta, Georgia, and he could not distinguish it from the European plant; but he gave no indication of its habitat. Torrey and Gray in 1838 (1:25) referred to the Kentucky and Georgia records, added three states west of the Mississippi River, and gave its habitat as "alluvial situations." Deam in 1940 (464) discussed its distribution and habitat in Indiana in some detail.

²³Am. Jour. Sci. 1:379-380.

RANUNCULUS, Linnaeus. *The Buttercups and Crowfoots.*

About 250 species, mostly in the North Temperate zone. Alabama has about a dozen, mostly native.

R. pusillus Poir. is supposed to be native, but grows mostly in ditches and other places that have been tampered with. It is widely distributed over the state, but is not common. It blooms in spring, and probably soon disappears. There are one or two related species, or varieties, that I have not distinguished.

R. abortivus L. may be native, but is usually a weed, in damp places. Commoner than the preceding, and blooms about the same time. Farther north it has been divided into several varieties.

R. sceleratus L. Probably introduced from Europe. Grows in wet ditches, not common. Dr. Mohr reported it from Mobile County, and I collected it in a railroad ditch near Demopolis in 1932.

R. parviflorus L. Native of southern Europe. Grows in grassy places in and around several of our cities.

MENISPERMACEAE. Moonseed Family.

About 55 genera and 150 species, all vines, mostly tropical.

EPIBATERIUM, Forster (*Cebatha*, Forsk.; *Cocculus*, DC.)

About 11 species, mostly tropical. Only one in Alabama.

E. Carolinum (L.) Britton. A vine, usually short-lived, but if it has a chance to grow long enough it may develop a woody stem. Common in most parts of the state, especially in fields a year after cultivation. Its red berries gives it some value for decorative purposes.

This species was not understood by Nuttall or Elliott, though they copied the name it went by in those days (*Wendlandia*) from earlier authors. Elliott said of it in 1817 (1:433):—"This plant has hitherto escaped the researches of all of our botanists." Torrey and Gray in 1838 (1:47) attributed it to "woods and banks of rivers," in five southeastern states. Chapman in 1860 (16) seems to have recognized it as at least partly weedy, for he said of it:—"Woods and thickets, Florida to North Carolina, and westward."

LAURACEAE. Laurel Family.

About 40 genera and 1,000 species, mostly tropical trees. (The Old World laurel, of classical literature, belongs to this family, but the various trees and shrubs called laurel in the eastern United States do not.)

SASSAFRAS, Nees.

Two species, the other one in Asia.

S. variifolium (Sal.) Kuntze. (*S. officinale* Nees, *S. Sassafras* (L.) Karst, *S. albidum* (Nutt.) Nees.)

Undoubtedly native in rich woods, especially in the northern parts of the state, where it is sometimes a foot or more in diameter. But the vast majority of the individuals at the present time are saplings or shrubs, on roadsides, in old fields, and around their edges. And their thick spreading roots make them difficult to grub out, in fields that have been abandoned a few years. But those who do so are rewarded by the possibility of using them to make sassafras tea, an old-fashioned semi-medicinal beverage or spring tonic, still used even in our cities.

The sassafras is commoner in northern than in southern Alabama, and native specimens seem to be rare south of the black belt.

Deam in 1940 (480) thought it was native in every county in Indiana, but his account of it seems to indicate that it is now practically always a weed there, and not a forest tree.

Country people used to try to distinguish a red and a white sassafras, differing in medicinal properties, and Nuttall discussed them at some length in 1818 (1:259-260), but modern botanists are not inclined to make any such distinction.

PAPAVERACEAE. Poppy Family.

About 23 genera and 115 species, mostly in the North Temperate zone.

ARGEMONE, L.

About ten species, native of the warmer parts of America. One or two in Alabama.

A. Mexicana L. (Mexican poppy.) Grows mostly in waste places in and around cities. Not common. Probably native of Mexico, though it is said to be widely distributed in India. Its large yellow flowers are rather showy.

Nuttall in 1818 (2:9) made a few observations on this genus that seem worth quoting, as follows:—"A. mexicana is also indigenous to the West Indies

and Mexico" and "In Georgia there is said to be not merely a variety, but a second species of this genus with *white flowers*." This is probably what was described by Lestibudois as *A. alba* in 1799, and by Croom as *A. Georgiana* in 1834. Elliott in 1821 (2:13) said of *A. Mexicana* "Grows in dry soils around buildings and is probably a naturalized exotic." Also "The variety with white flowers is an ornamental plant, and is probably a distinct species, but the notes which I formerly took have been mislaid, and I have had no opportunity for a few years past of comparing the two plants in a living state." We have an analogous case in the yellow and white forms of *Verbascum Blattaria*, mentioned on page 200.

Croom in 1834 proposed the name *A. georgiana*²⁴ for the white form, with vague references to Nuttall and Elliott, and hardly any description, and no indication of where the plant grew. Darlington had already found *A. Mexicana* in Pennsylvania before 1837, and said of it (316):—"Gardens, and cultivated lots: not very common. . . . This plant has become partially naturalized; but does not seem to extent itself rapidly. It is the only recognized species of the genus;—though there is a white-flowered one in the South, which Mr. Elliott thought might prove to be specifically distinct." Torrey and Gray in 1838 (1:61) mentioned the yellow and white forms without indicating important differences other than flower color, and said:—"In waste and cultivated places throughout the Southern and Western States. West to the Platte and Canadian Rivers! Native? Key West! Sparingly naturalized in the Northern States." Chapman in 1860 (21) said of *A. Mexicana*:—"Flowers white or yellow; . . . Waste places, apparently native in South Florida." Small in 1933 (548), kept the yellow and white forms separate, and treated the South Florida plant as a third species, *A. leiocarpa* Greene. The plant of the Great Plains is now also treated as a distinct species, *A. intermedia* Sweet.

NYMPHAEACEAE. Water-lily Family.

This has been variously subdivided, but in the narrowest sense comprises about five genera and 45 species, widely distributed, all aquatics.

NYMPHAEA, Linnaeus.

(Also called *Nuphar* and *Nymphozanthus*.) *Yellow pond-lilies*, or *bonnets*.

N. advena Soland. (*Nuphar advena* R. Br.) Scattered over the state in ponds and sluggish streams, but not very common. It often finds its way to artificial or accidental ponds, such as mill-ponds, and pools left along railroads where earth has been dug out to build embankments, leaving hollows which have a few feet of water in them much of the time. I have seen it in such places along both railroads a few miles south of Tuscaloosa, where they traverse river and creek bottoms. Blooms in summer. The identity of the species is not quite certain, however, for the leaves of our plant do not stand up out of the water as commonly as those of *N. advena* do farther north.

²⁴Am. Jour. Sci. 25-75. 1834.

CRUCIFERAE (BRASSICACEAE). Mustard Family.

About 200 genera and 1,800 species, widely distributed, mostly in temperate regions. Include many food plants and weeds.

CARARA, Medicus. (*Coronopus*, Gaertn., *Senebiera*, Poir.)

About six species, mostly in warm regions. One common weed in Alabama, and another reported on ballast.

C. didyma (L.) Britton. Formerly considered native, but probably introduced from Europe or Brazil. Rather common on roadsides and in waste places, mostly in and around cities and towns. Blooms in spring and disappears in summer. Sometimes intimately associated with *Gymnostyles nasturtifolia*, a plant of a very different family, which it closely resembles in foliage.²⁵

Nuttall said of this in 1818 (2:64):—"Abundant along the margins of the Mississippi and Missouri, common also in Carolina." And the next paragraph indicated that he believed it to be indigenous in both Europe and America. Elliott said of it in 1822 (2:139):—"Grows very common in open grounds and pastures, is eaten freely by cattle early in the spring and communicates to their milk and butter a disagreeable flavor." (But he called it "pepper grass," and may have partly confused it with *Lepidium Virginicum*.) Torrey and Gray in 1838 (1:114) combined the observations of Nuttall, Elliott and others, and said of it:—"Fields and along rivers, North Carolina! to Louisiana! west to Arkansas!" Chapman in 1860 (30) said "Waste places, Florida to North Carolina."

BURSA, Weber. (*Capsella*, Vent.)

Four recognized species, in the North Temperate zone, and perhaps also many elementary species, or mutants.

B. Bursa-pastoris (L.) Britton. (Shepherd's purse.) A common European weed, nearly throughout the eastern United States. Grows mostly in waste places in and around cities and towns. Blooms in spring, disappears in summer.

Seeds sent years ago from Tuscaloosa by Dr. J. Y. Graham to Dr. George H. Shull, who was studying mutations in this genus, developed into plants with somewhat different leaves from the normal, which were described as *B. Tuscaloosae* Shull; but that species does not seem to have been identified in the wild state since.

²⁵See Torrey, 37:104-108. 1937.

LEPIDIUM, Linnaeus. *The Pepper-grasses.*

About 70 species, in the North Temperate zone. One is a common weed throughout the eastern United States, and Dr. Mohr found two others on ballast.

L. Virginicum L., alleged to be native, though found also in Europe, the West Indies, etc., is common throughout the state, on roadsides and in waste places. It begins to bloom in spring, and may continue through the summer.

L. ruderale L., a European species, was found by Dr. Mohr on ballast, etc., near the coast in 1879, and 1888. In recent years I have found what appears to be the same thing in vacant lots near Tusculumbia and Tuscaloosa. It differs from the preceding, with which it might be confused early in the season, or may intergrade, in having smaller leaves, which soon fall off, and longer and more erect racemes. And the whole plant turns yellow and dies a few weeks after blooming.

RADICULA, Hill. (Also called at various times *Sisymbrium*, *Roripa*, and *Nasturtium*.)

This genus is variously limited by different authors, but is chiefly if not wholly confined to the North Temperate zone. The few Alabama species are all weeds, and not common.

R. Nasturtium (or *Sisymbrium Nasturtium-aquaticum* L., as it is called in Small's Manual), the water-cress, reverses the state of affairs in many cases described above. Authorities are pretty well agreed that it is native of Europe, and escaped from cultivation here, but it has every appearance of being native in limestone springs, and the streams flowing from them, in Franklin, Jefferson, Tuscaloosa, and a few other counties. In Franklin County I have seen it in a spring in woods, about a mile from the nearest house or clearing.

It is cultivated for salad, and is grown commercially in at least one large spring in Madison County.

Some conflicting opinions have been expressed about the habitats and indigeneity of this species, or perhaps its identity has been confused by some. Nuttall in 1818 (2:67) said of it:—"Truly indigenous. Abundant on the margins of ditches and spongy springs in Long Island, near New York, &c." Elliott in 1822 (2:145) said:—"This plant, the common cress of our gardens, is becoming naturalized in our country, but in the low country of South-Carolina, it certainly is not indigenous. Grows in close and damp soils, Flowers February - May." But he described its flowers as yellow, and may have been dealing with some other species. Torrey and Gray in 1838 (1:72) said of this, the only white-flowered species described by them:—"Certainly

introduced and scarcely naturalized in the United States." Chapman in 1860 (25) said "Ditches, &c., Florida, and northward. Introduced." Lowe said of it in Mississippi in 1921 (153):—"Common throughout the state in cool springy places. Biloxi beach. April." Deam (496) found it mostly in outlets of springs, and more in northern than in southern Indiana.

R. sylvestris (L.) Druce, another Old World species, was reported by Mohr as fully established and spreading in shallow marshes and muddy ditches near Mobile.

R. sessiliflora (Nutt.) Hitchcock. An alleged native species, that I have not identified. Dr. Mohr attributed it to borders of ditches, low fields, etc., near the coast.

R. Walteri (Ell.) Small. (*Nasturtium tanacetifolium* H. & A.) Another alleged native, but reported also from Mexico, and could have been introduced from there. A winter annual, with habitats similar to the preceding, in the coastal plain. I have seen more of it in Florida than in Alabama.

ERYSIMUM, Linnaeus. (*Sisymbrium*, L., in part.)

This genus is variously interpreted, but Small's Manual restricts it to three species, natives of the Old World.

E. officinale L. (long known as *Sisymbrium officinale*). Grows in waste places in and around towns, and is not abundant. Blooms in spring, and dies in summer. In its spreading upcurved branches it resembles *Rumex pulcher*, which sometimes grows with it, and blooms and dies down about the same time.

Nuttall said of this in 1818 (2:68):—"Naturalized, but not so very common as in England and France."

E. repandum L., previously unreported from the southeastern states, was found growing abundantly along a cindery railroad embankment about a mile east of Woodville, Jackson County, in the spring of 1941.

ARABIDOPSIS, Schur. (*Stenophragma*, Celak.)

About a dozen species, mostly in Europe and Asia. One weedy one in Alabama.

A. Thaliana (L.) Britton. (*Drabis Thaliana* L., *Sisymbrium Thalianum* Gay.) A European weed, growing mostly in fields, and blooming in spring. Scattered over the state, but commonest northward.

This does not seem to have been known to Elliott, but Darlington had it in Pennsylvania in 1837, and observed as follows (388):—"Old fields; along

Brandywine: frequent. . . . This is probably an introduced plant; but is extensively naturalized. Torrey and Gray said of it in 1838 (1:93):—"On rocks and in sandy fields, Massachusetts! to Georgia! west to Kentucky. Introduced? May." Chapman's account of it in 1860 (28) was similar, except that he gave its flowering period as March and April, which is correct for the South.

CAMPE, Dulac. (*Barbarea*, R. Br.)

About seven species, in temperate regions. One in Alabama.

C. verna (Mill.) Heller. Native of Europe. A weed in cultivated fields, blooming in spring. Collected in northern Lauderdale County, April 24, 1942. Can probably be found elsewhere in that part of the state.

DRABA, Linnaeus.

About 175 species, mostly in the cooler parts of North Temperate zone.

D. vera L. Native of Europe. Found in spring on roadsides, in pastures, etc., in Colbert and other northern counties. Apparently commoner in Georgia.

This was not mentioned by Elliott, and was not known south of Virginia in the time of Torrey and Gray; and it was not listed by Mohr. But it is small and easily overlooked, and might have been in the Tennessee Valley a long time.

D. brachycarpa Nutt. Alleged to be native, but apparently always a weed, usually in cultivated fields, where it blooms in spring and soon disappears. Apparently pretty widely distributed over the state.

Dr. Mohr reported two others supposed native but weedy species, *D. Caroliniana* and *D. cuneifolia*, that I have not identified.

CARDAMINE, Linnaeus.

About 100 species, mostly in the Northern Hemisphere. We have one native species in Alabama, and another alleged native that seems to be always a weed.

C. Pennsylvanica Muhl. (Formerly called *C. hirsuta*.) Fields and roadsides, especially if a little damp. Blooms in spring. Less common in Alabama than farther north. (One or two other species may have been confused with it here, however.)

ARABIS, Linnaeus.

About 120 species, mostly in the Northern Hemisphere. Alabama has three or four native species, and one alleged native that seems to be always a weed.

A. Virginica (L.) Trel. (*A. Ludoviciana* Meyer.) Resembles the preceding in habitat, and also in general appearance, and may have sometimes been confused with it.

CAPPARIDACEAE. Caper Family.

About 35 genera and 450 species, mostly in warmer regions.

NEOCLEOME, Small. (Formerly called *Cleome* L., but that name now seems to be applied to a different genus.)

About 70 species, mainly tropical. A few weedy ones in Alabama,

N. spinosa (L.) Small. (*Cleome pungens* Willd.) An odd-looking plant from tropical America, blooming in summer. Occasionally cultivated and escaping, chiefly southward. There seems to be some uncertainty about its identification, but I have seen what I took to be *N. spinosa* from trains at Chapman, Butler County, July 28, 1911, and near Canoe, Escambia County, May 19, 1927. Deam in 1940 (1054) did not regard this as sufficiently established in Indiana to be counted as a wild plant.

Dr. Mohr found this and three other species on ballast near Mobile.

Polanisia trachysperma T. & G., a western species, was collected by Dr. Mohr at or near Dadeville, Tallapoosa County, in July, 1877, which was several years before there was any railroad there. See Torrey & Gray, 1840 (1:669), Chapman 1883 (606), 1897 (32), Mohr 1901 (529), Small 1903 (489), 1933 (576). But there seems to be no other report of its occurrence east of Texas, and it is probably to be regarded as a mere fugitive, like the numerous ballast plants. *Croton Texensis*, another western plant, was found by Dr. Mohr at the same time and place.

PENTHORACEAE.

Only one genus, as follows.

PENTHORUM, Linnaeus.

One species, or perhaps another in China.

P. sedoides L. Probably native in swamps, but grows also in weedy places, such as ditches. Mostly in the northern parts of the state. Not common in Alabama, probably more so farther north.

SAXIFRAGACEAE. Saxifrage Family.

Variously subdivided, but in the narrower sense includes about 90 genera and 650 species, mostly in temperate regions.

LEPUROPETALON, Elliott.

Only one species, as follows.

L. spathulatum (Muhl.) Ell. (Too small to have a common name.) Said by Elliott to grow "in close soils" in Chatham County, Georgia, and by Mohr on damp grassy banks in sandy soil, Mobile County, where it blooms in March. It is so small that it is seldom seen, and it probably disappears in summer; and I have never recognized it. It must be a weed, though supposed to be native. But it grows also in Mexico, according to Small, and might have been introduced from there. Torrey and Gray in 1840 (1:590) noted its occurrence in Chile, which is another possible original home.

ALTINGIACEAE. Sweet Gum Family.

Formerly included in the Hamamelidaceae (Witch-hazel family). As at present defined includes about five genera and ten species.

LIQUIDAMBAR, Linnaeus.

Species variously estimated as one to four, in Asia, the eastern United States and Mexico. One in Alabama.

L. Styraciflua L. Sweet gum. (Red gum of the lumber trade.) Native in all parts of Alabama except the higher mountains, especially in damp or rich soils. Also thrives in low pastures, old fields, etc., where it can be justly regarded as a weed.

ROSACEAE. Rose Family.

This was formerly regarded as including the apples and pears, plums and cherries, etc.; but as now restricted it comprises about 75 genera and 1,300 species, widely distributed, especially in temperate regions.

POTENTILLA, Linnaeus. (*The Cinquefoils*.)

About 300 species, natives of temperate regions. More numerous in the northern than in the southern states. One presumed native and one or two introduced species in Alabama.

P. Canadensis L. (*P. simplex* Mx., sometimes treated as distinct, may be only a later seasonal stage, as some of the following quotations suggest). Supposed to be native, but has rather weedy tendencies. Found mostly on roadsides and in partly cleared woods, principally in the northern half of the state. Blooms in spring and early summer.

Elliott said of it in 1821 (1:574):—"Grows in shaded, rich soils. Not uncommon even along the sea coast of Carolina and Georgia. Flowers March-April." *P. simplex*, which he described immediately below, he seemed to know only from the publications of two of his predecessors. Darlington in 1837 (304) described both *P. Canadensis* and *P. simplex*, and said of the former, "It is a plant which affects sterile neglected pastures; and its abundance is a pretty sure indication of a poor thriftless farmer." Of the latter he said:—"Borders of woods; woodland clearings, &c. frequent. . . . This is undoubtedly nearly related to some states of the preceding, and has been suspected to be only a variety; but there is usually no difficulty in distinguishing them, at a glance, when viewed in their native localities."

Torrey & Gray in 1840 (1:443) said of *P. Canadensis*:—"Dry fields and border of woods, Canada? to Georgia, and west to Arkansas! April - Aug. . . . *P. simplex* is a more luxuriant summer state of the same species, growing in richer soil or shady places; when the stems often attain the length of 2 feet or more, and the leaves become larger, more membranaceous, and less pubescent; but the radical ones resemble those of the ordinary *P. Canadensis*." Chapman in 1860 (124) said of *P. Canadensis*:—"Meadows in the upper districts, Mississippi to North Carolina, and northward. July and August;" and treated *P. simplex* as a synonym.

Joseph Jackson, in his "Through Glade and Mead," a delightful study of nature in Worcester County, Massachusetts, published in 1894, quotes on page 160 a passage from Thoreau, as follows:—"June 1, 1853. To Walden. . . . The cinquefoil, in its ascending state, keeping pace with the grass, is now abundant in the fields. This is a feature of June." Small in 1903 (521) treated *P. simplex* as a variety of *P. Canadensis*; but in 1933 (610-11), growing bolder, perhaps, he restored it to specific rank.

One or two other species, introduced from the Old World, are seen occasionally around cities and towns.

DUCHESNEA, J. E. Smith.

Two species, natives of Asia. One introduced in Alabama.

D. Indica (Andr.) Focke. (*Fragaria Indica* Andr.) Sometimes called "snake berry." Grows mostly in shady places near dwellings, college buildings, etc., in cities and towns. Widely distributed over the state. Evergreen, blooming most of the year. The fruit looks much like a strawberry, but is tasteless, and we do not know what animal eats it to scatter the seeds.

Although this is now said to range from New York to Florida, Missouri and Arkansas, it was not known to Elliott and his contemporaries. Torrey and Gray in 1840 (1:444) had a specimen from Georgia, with locality and habitat not specified, which they took for a new species, and described as *Potentilla Durandii*. That was overlooked or ignored by Chapman in 1860, but in 1883 he listed it as *Fragaria Indica* (strawberry geranium), and attributed it to "Waste places, escaped from cultivation," but did not say where.

FRAGARIA, Linnaeus. *The Strawberries.*

About 35 species, in North and South America, Europe and Asia, besides several horticultural varieties and hybrids. One in Alabama.

F. Virginiana Duchesne. Wild strawberry. Supposed to be native, in rather open woods, but seldom if ever found in perfectly natural habitats. However, the testimony of some early explorers seems to indicate that it was more abundant 100 or 150 years ago than it is now.²⁰ Its growth may have been encouraged by the Indians, and in more modern times it may have been exterminated in many places by the whites. Whether native or not, it is commoner northward than southward. It blooms in late spring.

Elliott said of it in 1821 (1:575):—"Grows in woods and meadows in the upper districts of Georgia and Carolina. Very rare in the low country. Flowers February-April." Darlington in 1837 (305) found it in Chester County, Pennsylvania, in "Neglected old fields; fence-rows, &c. frequent." Torrey and Gray in 1840 (1:448) said:—"Fields and meadows throughout the United States (in the South common only in the woody and somewhat elevated districts) and Canada!" Chapman in 1860 (124) gave its habitat as "rich woods."

Deam in 1940 (563-564) listed it from a variety of habitats in Indiana, most of them with little or no shade. One of them was railroad rights-of-way, and I have seen it in such places in Michigan, Alabama and Florida.

²⁰See Mohr, 1901, p. 541.

ALCHEMILLA, Linnaeus.

Thirty or forty species, natives of Europe, Asia, and the mountains of Africa. One in Alabama, sometimes put in a different genus, *Aphanes*.

A. microcarpa Boiss. & Reut. A very inconspicuous little plant, with green apetalous flowers about the size of a pin-head, growing among grass on lawns, blooming in spring before the grass chokes it, and disappearing in summer. It has had a curious history. It was long regarded as *A. arvensis* (L.) Scop., a fairly common European weed, though for years it was not known in this country north of Virginia, where it was found by the pioneer botanist John Clayton about 200 years ago. Elliott knew nothing of it, and Torrey and Gray in 1840 (1:432), like Nuttall in 1818, knew no American specimens except those in the herbarium of Clayton. Later it seems to have spread a little northward and more southward. Chapman said of it in 1860 (123):—"Waste places, North Carolina and Virginia. Introduced." (But in 1897 he restricted it to North Carolina.) In 1897 I extended its known range southward to Georgia by finding it in Athens.²⁷ It was described as *Alchemilla arvensis* in both editions of Small's Flora of the Southeastern United States (1903 and 1913), in which its range was given as "In sandy fields, Virginia to Tennessee, North Carolina and middle Georgia. Naturalized from Europe. Also on the Pacific slope and in Nova Scotia." Robinson and Fernald, in their "Gray's New Manual of Botany, Seventh edition" (1908), said:—"N.S. (according to Lawson); D.C. (where said to be extinct); Va. to Tenn. and Ga. Adv. from Eurasia." But in 1908 Dr. P. A. Rydberg, working over the Rosaceae for the North American Flora, put it in the related genus *Aphanes* L., and at the same time discovered that it differed materially from the *A. arvensis* of northern Europe, and described it as a new species, *Aphanes australis*. In the estimation of most botanists, that automatically made it a native species, confined to the southeastern United States. But I still had my doubts, and expressed them in a paper presented to the Alabama Academy of Science on April 2, 1937, an abstract of which was published in the Academy's Journal early in June of that year. Prof. M. L. Fernald, who found it in southeastern Virginia about that time, discovered that our plant is identical with *Alchemilla microcarpa* of southern Europe, and that a European botanist had come to the same conclusion in 1935.²⁸

It was not known in Alabama until April, 1931, when I found it in the front yard of an ante-bellum home a few miles south of Selma, occupied by the widow of Prof. R. S. Cocks, who had taught botany at Tulane University for many years. Prof. Cocks used to spend his summers there, but evidently did not see the *Alchemilla* because it is not visible in summer; and it may have been there for many years. I have since seen it in Colbert, Tuscaloosa and Greene Counties, and it may be pretty widely distributed in the state.

²⁷See Bull. Torrey Bot. Club, 27: 435. 1900.

²⁸Rhodora, 40:435-436. Nov. 1938.

AGRIMONIA, Linnaeus.

About 15 species, mostly in the North Temperate zone; but they are not very well defined.

Our upland plant, which was long called *A. Eupatoria* L., has been divided into several species, one of which from Alabama has been identified as *A. rostellata* Wallr. Mohr records four other upland species from the state, which probably do not differ much. They are native in dry woods, but also thrive in weedy places, such as clearings.

A. parviflora Soland., easily distinguished by its more numerous leaflets, grows in wet places, usually more or less weedy.

RUBUS, Linnaeus. *The Blackberries, Raspberries, etc.*

A large genus in the North Temperate zone (a few species in the tropics), but the number of species is very indefinite, for they show infinite variations, and only a few "experts" in Europe (where they have been called batologists) and the United States pretend to understand them.

Eight or ten species have been recognized in Alabama, all supposed to be native, but some are found usually and some always in weedy places. They abound in partly cleared woods, especially if damp, along edges of fields, in pastures, and on roadsides, practically throughout the state.

Our bush blackberries represent two general types, but "experts" might divide each group into a dozen or more species. They bloom in late spring, and ripen their fruit in summer. The fruits are all edible, and are an important source of food, but for ten or eleven months of the year the bushes are nothing but a nuisance to persons who may have to push through them, on account of their innumerable prickles (or stickers' as they are called in the South). And even at fruiting time the bushes seem to be a favorite haunt for "chiggers" (as they are called northward) or "redbugs" (the usual name in the southern parts of the state).

The blackberries in the northern half of the state, and in the richer soils southward, with leaves green beneath, are referred provisionally to *R. argutus* Link. Those in the southern half, especially in sandy soils, with leaves closely covered with whitish hairs beneath, are referred to *R. cuneifolius* Pursh. But one with leaves of this type, but with fruit much like that of the dewberry, and maturing rather early, was observed on Sand Mountain, in DeKalb County, in July, 1943.

The dewberry, a trailing evergreen vine, common on roadsides and in old fields, is probably mostly *R. trivialis* Mx. It blooms and ripens somewhat earlier than the blackberries; some individuals probably as much as a month earlier.

The "Himalaya" blackberry, *Rubus procerus* P. J. Muell. (called *R. Linkianus* Ser. in Small's Manual), of uncertain origin, sometimes cultivated for its fruit, has escaped to roadsides in the northern half of the state, for example near Huntsville, Guntersville, Birmingham, Tuscaloosa and Wedowee. It can be distinguished from our native species, especially in winter, by its evergreen leaves with a bluish cast, and broader leaflets with whitish fuzz beneath.

Some detailed notes on our blackberries in the works of Elliott (1:567-569), Darlington (306-308), and Torrey and Gray (1:454-456) may still be worth consulting, after the lapse of more than a century. A multitude of supposed new species have been proposed in recent years by L. H. Bailey and others; but Deam in 1940 (555-563, 1060-1062) recognized only 18 species of *Rubus* in Indiana, and five of those were raspberries.

ROSA, Linnaeus. *The Roses.*

About 100 species and innumerable horticultural varieties and hybrids, in the North Temperate zone. Seven or eight species have been reported from Alabama, some supposed native and some escaped from cultivation. But even the native species are more or less weedy.

R. setigera Mx. Known only in the eastern United States and southern Canada, and therefore presumed to be native; but with us it is found mainly on chalky roadsides in the black belt. It also grows along a few calcareous creeks in the Tennessee Valley, where it is less common, but appears more at home.

R. humilis Marsh. Our smallest species, usually about knee-high. Probably native in dry woods, prairies, etc., but often if not usually weedy. Several closely related species have been described in the North.

R. bracteata Wendl. (Macartney rose.) Native of Asia. An evergreen, making dense rounded clumps, several feet high and wide. Has white flowers, mostly in May and June. Confused by some with the next, which blooms about two months earlier. Originally cultivated, but now mostly a weed, in old fields, pastures, etc. Scattered from the Tennessee Valley to near the coast; common around Calera and Carlowville.

This species was not known to Elliott, and was not mentioned by Chapman even in 1883; but Torrey and Gray knew of it as long ago as 1840. They said of it (1:462):—"Naturalized in hedges near New Orleans. . . . This Species is also of Chinese origin."

R. laevigata Mx. (*R. Sinica* Ait.; *R. Cherokeeensis* Don.) Cherokee Rose. Supposed to be native of China and Japan, but was found in this country by some of the earliest explorers, and is thought by some to have been cultivated by the Indians, whence the common name. An evergreen, vine-like in

habit, blooming in March and April. Cultivated for ornament, but also occasional as a roadside weed, in the black belt and other parts of the coastal plain.

Elliott made some interesting comments on this in 1821 (1:567), of which the following is a part:—"It has been cultivated in the gardens in Georgia for upwards of 40 years, under the name of the 'Cherokee Rose,' but its origin is still obscure. In our rural economy this plant will one day become very important. For the purpose of forming hedges, there is perhaps no plant which unites so many advantages. For quickness of growth, facility of culture, strength, durability and beauty, it has perhaps no rival. Grows in moist soils, preferring close, rich loam. Flowers April, principally, but occasionally through the summer." Torrey and Gray said of it in 1840 (1:462):—"S. Carolina! to Louisiana! cultivated in gardens and extensively naturalized. . . . This evergreen species has been cultivated for many years in the Southern States, under the name of *Cherokee Rose*. It is doubtless of Chinese origin." But Chapman in 1860 (126) and again in 1897 (138) followed his description by "Common in cultivation," and said nothing about its running wild.

MALACEAE. Apple Family.

About 20 genera and 500 species, mostly in temperate regions.

MALUS, Miller. *The Apples*.

About 15 species, in the North Temperate zone. Only one definitely known in Alabama, but we may have one or two other related species.

M. angustifolia (Ait.) Mx. (*Pyrus angustifolia* Ait.) Crab-apple. A small tree, with handsome flowers in spring and hard green fruits in fall, undoubtedly native in most parts of the state, but also grows on roadsides northward, for example on Sand Mountain.

CRATAEGUS, Linnaeus. *The (Red) Haws*.

A large genus, but the number of species is very indefinite, for they are separated by obscure characters, and many more have been described than the facts seem to justify. Over 1,000 species have been proposed by American authors in the last fifty years, and about half of these were supposed to grow in the southeastern states; but the majority are not now accepted as valid. Small's *Flora of the Southeastern United States*, 1903, described 185 species, but his *Manual*, thirty years later, recognized only 33. (However, the area covered by the latter was smaller, as it excluded Oklahoma, Texas, Arkansas, and all of Louisiana except the small portion east of the Mississippi River.)

About 63 species were credited to Alabama at the time of the greatest expansion of the genus, forty years ago, and all were supposed to be native places.²⁹

The principal weedy ones recognized by the writer are *C. spatulata* Mx., Some grew naturally in dry woods, glades, swamps, etc., but many if not which has much the same distribution as the crab-apple just mentioned, and most of them were characteristic of old fields, pastures, and other weedy *C. Michauxii* Pers. (if correctly identified), which grows mostly in sandy old fields in the coastal plain.

AMYGDALACEAE. Almond (or Plum) Family.

Formerly included in the Rosaceae, like the preceding family. In this restricted sense it includes about ten genera and 125 species, most of them in temperate regions.

PRUNUS, Linnaeus. *The Plums, Cherries, etc.*

In the broader sense this includes over 100 species, widely distributed, but the peach, laurel cherry, choke cherries, etc., are often put in other genera. About ten species have been credited to Alabama, some native, some doubtful, and some exotic.

By far the commonest weedy one is *P. angustifolia* Marsh. (*P. Chicasa*, Mx.), the wild (or Chickasaw) plum. It is a large shrub, almost a little tree sometimes, forming small thickets along roads, edges of fields, etc., nearly throughout the state. Modern botanists are inclined to treat it as native without question, because it is not known outside the United States. But it is never found in natural habitats here, and it is believed to have been cultivated by the aborigines, who may have brought it from some source at present unknown; or it may have changed from its ancestral form in the centuries that the Indians cultivated it, just as many of our cultivated plants of European origin differ from their supposed wild ancestors.

Michaux, when he described it as *P. Chicasa* (a more appropriate name than Marshall's earlier *P. angustifolia*) said of it "Ab Indiis introducta," presumably meaning introduced by the Indians. But Prof. Sargent translated this "Introduced from the West Indies," which is rather far-fetched.

There are some very interesting notes on this in old books, which are well worth recalling. Nuttall in 1818 (1:302) said:—"In the United States, hitherto discovered only in the vicinity of ancient Indian stations; it appears to have been cultivated by the aborigines, but its original site is unknown." Elliott, about three years later (1:542) said:—"This plant is singularly domestic, following man in this climate wherever he extends his settlements,

²⁹For a more detailed discussion of the complications in this genus see our Monograph 9 (1928), pages 203-209.

and growing without care in all cultivated high lands. It is found in all the old Indian settlements, and, according to their traditions, is said to have been brought by them from the western side of the Mississippi. The fruit, like that of most cultivated species, varies much, and some of its varieties are good. Grows in all soils excepting those which are frequently inundated. Flowers March." Darlington in 1837 (287-288) knew it in Chester County, Pennsylvania, only in cultivation.

Torrey and Gray in 1840 (1:407) devoted nearly half a page to it, saying among other things:—"South Western States! and Arkansas! perhaps only native of the country west of the Mississippi, from which, according to the traditions of the Indians, it was by them introduced into the Atlantic (Southern States, where it is extensively naturalized: sometimes cultivated in the Northern States. April." Chapman in 1860 (119) and again in 1897 (131) said of it:—"Old fields, forming thickets. March;" but did not say where.

This species flourishes best in the cotton belt, and extends into Florida only about as far as cotton does; but it has straggled northward to New Jersey and Indiana. Witmer Stone, in his *Plants of Southern New Jersey*, 1912 (p. 491) says of it:—"This southern species was discovered . . . on the banks of the Delaware River in loose drifting sands, three miles south of Pennsgrove, in Salem County. Dr. Britton regards it as 'adventive from the southwest' in his catalogue, but as the species is now known to occur native from Delaware to Florida and Texas, its presence here would seem to be quite natural and in line with the distribution of several other Austroriparian species."

Deam in 1940 (580) was much more skeptical about its being native in the North. He said:—"I feel positive that this species was never native to Indiana and I think that our few reports can be referred to naturalized plants. I have seen it persist in a fallow field in the Clark County State Forest after cultivation and spread over an area, as nearly as I can recall, of about half an acre in 30 years. I have seen it frequently in large colonies in fallow fields about former habitations. In no instance have I seen it in a place where I would regard it as native and it should be referred to the introduced species."

This is a weed that does more good than harm, for it does not interfere with cultivated crops to any extent, and it bears an abundance of good fruit in early summer; red on some bushes and yellow on others.

P. serotina Ehrh., the wild (black) cherry, is native in rich woods, well protected from fire, not very common anywhere in Alabama, but probably more so northward than southward. But most of the specimens at the present time are along roadsides and edges of fields, where the seeds have been dropped by birds.

A few of our other supposed native species of *Prunus* are frequent in clearings and second-growth woods, but they require no special comment here.

P. Mahaleb L., a small tree from southern Europe, once cultivated for grafting stock at a nursery near Huntsville, has escaped to the woods near by, and some of the specimens could easily be taken for native trees by any one who did not know their history.

Amygdalus Persica L. (*Prunus Persica* Sieb. & Zucc.), the peach, commonly cultivated, sometimes escapes to old fields and roadsides, but probably does not re-seed itself very well. It is interesting to note that Bartram found it in abandoned French plantations in what is now the northwestern corner of Baldwin County, about 170 years ago, as shown by the following quotation from his "Travels" (first edition, page 407):—

"After leaving these splendid fields of the golden *Oenothera*, I passed by old deserted plantations and high forests, and . . . came presently to old fields, where I observed ruins of ancient habitations, there being abundance of Peach and Fig trees, loaded with fruit."

One of the first modern botanists to report it as escaped from cultivation seems to have been John K. Small, who found it running wild around Stone Mountain, Georgia, in 1893.³⁰ But it was ignored by Chapman in 1897, and Mohr never recognized it as a wild plant in Alabama.

MIMOSACEAE. *Mimosa* Family.

This and the next two families were once lumped together as the Leguminosae (pulse family), but the separation of this one at least seems amply justified. It is said to comprise about 40 genera and 1,500 species, mostly trees and shrubs, in warm climates. Several are ornamental, and a few are weedy.

ALBIZZIA, Durazzini.

About 50 species, natives of the warmer parts of the Old World. One cultivated and escaped in Alabama.

A. Julibrissin (Willd.) Durazz. Commonly called "Mimosa," which is the technical name of a larger genus in the same family. A small or medium-sized tree, native of Asia, commonly cultivated in the southeastern states for shade and ornament, both of which purposes it serves admirably. This does not seem to have been known as a wild plant in the United States until a little more than a century ago. Torrey and Gray said of it in 1840 (1:404):—"In gardens and yards, Louisiana, . . . cultivated and somewhat naturalized. A small and very ornamental tree; a native of Persia."

³⁰Bull. Torrey Bot. Club, 21:17-18. Jan. 1894.

Chapman did not mention it in 1860, but said in 1883 (619):—"Roadsides. Introduced." (But where?) In 1897 (128) he described it, but gave it no habitat. Dr. Mohr reported it as "A rare escape from gardens" near the coast; but it must have spread since his time, for it is now frequent in woods and on roadsides near towns, in several parts of the state but especially in the southern half, as shown in some of the preceding regional weed lists. Some sort of blight is said to have attacked it recently in some other states, but I have seen no evidence of that in Alabama yet.

VACHELLIA, Wight & Arnott.

Several species, formerly included in the large Mediterranean and Australian genus *Acacia*. One cultivated and escaped in Alabama.

V. Farnesiana (L.) W. & A. (*Acacia Farnesiana* L.) Called opopanax in the books, and huisache in Texas. A small tree, apparently native in the drier parts of South Florida and South Texas, and southward. Cultivated for ornament, and escaped along the west shore of Mobile Bay, according to Mohr.

It was not known to Elliott, and perhaps does not even now range as far east as South Carolina, though I saw it near Savannah (cultivated?) a few years ago. Torrey and Gray said of it in 1840 (1:405):—"About New Orleans! Also near St. Marks, Florida, *Dr. Chapman!* Southern Florida, *Dr. Hasler!* doubtless introduced." Chapman, although credited with finding it in Florida as long ago as 1840, did not mention it in his books until 1883 (619), when he said:—"Waste places. Introduced," but did not specify where. In 1897 (128) he described it again, but gave it no habitat.

ACUAN, Medicus. (*Desmanthus*, Willdenow.)

About ten species, mostly in tropical America. One in Alabama.

A. Illinoense (Mx.) Kunth. (*Desmanthus brachylobus* (Willd.) Benth.

Supposed to be native in the black belt (and originally described from the prairies of Illinois), but rather weedy, its favorite habitat being chalky roadsides and gullies. It is common in the black belt, but has spread to a few other regions, usually in dry rich soils.

A few other plants of this family, such as the "shame-brier", (*Morongia uncinata* or *Leptogottis Nuttallii*), *Neptunia lutea*, and *Mimosa strigillosa*, presumably native, are sometimes found in weedy places.

CAESALPINIACEAE (or Cassiaceae). Senna Family.

About 90 genera and 1,000 species, mostly tropical.

CASSIA, Linnaeus. (*Senna*, etc.)

The number of species is uncertain, on account of the genus being divided differently by different "authorities," but in Dr. Mohr's time it was regarded as having at least 350 species, of which three were known in Alabama. But those three are put in two genera other than *Cassia*, in Small's Manual, 1933, following Rafinesque, and later Britton & Rose.

C. Tora L. (*C. obtusifolia* L.; *Emelista Tora* Britton & Rose.) Coffee-weed. A tropical weed, fairly common in Alabama, especially in the southern half, in gardens, barn lots, and other fairly rich weedy places. A plant of rather attractive appearance, and interesting in the way it folds its leaves and goes to sleep at night; but ill-scented when bruised. Blooms all summer.

Nuttall in 1818 (1:280) seemed to regard this as native, for he gave its distribution as "In Georgia, and on the banks of the Mississippi." But Elliott, the year before (1:471) said of it:—"Grows about buildings, and in dry, cultivated soils. Common. Flowers August-October." Chapman in 1860 (114) gave its habitat as "Waste places."

C. occidentalis L. (*Ditremexa occidentalis* Britton & Rose.) Coffee-weed. Practically everything said about the preceding will apply to this. The two are sometimes, but not usually, found together.

C. Marylandica L. (or perhaps *C. Medsgeri* Shafer). (Also put in *Ditremexa* by Britton & Rose.) Supposed to be native, but usually in somewhat weedy places. A favorite habitat for it is a little-used rocky road through woods in a stream-bottom, especially in limestone regions like the Tennessee and Coosa Valleys. Not very common in Alabama.

CHAMAECRISTA, Moench. *The Partridge-peas.*

This genus was included in *Cassia* by nearly all 19th century botanists, but it seems to be amply distinct, on account of having much smaller and more numerous leaflets, giving the leaves a feathery appearance, and lacking the rank odor of the coffee-weeds. About 100 species are now recognized, in temperate and tropical regions.

Seven or eight species have been credited to Alabama, but the distinctions between some of them are pretty finely drawn. They are all allegedly native, but grow in more or less weedy places, though not in barn-yards like the coffee-weeds.

Two types are easily distinguished, differing principally in size of flowers. I have referred all the large-flowered ones (formerly called *Cassia Chamaecrista* L.) to *C. fasciculata* (Mx.) Greene, and the small-flowered ones to *C. nictitans* (L.) Moench (*C. procumbens* (L.) Greene). Both grow on roadsides and in old fields. The former is commoner, and ranges pretty well over the state, while the latter seems to be more frequent northward. They have been recommended for forage and honey, and their seeds are an important quail food.

Mease in 1807 devoted about half a page (296) to *C. fasciculata*, or what passed for it in those days, saying that it was cultivated in Maryland and on the Eastern Shore of Virginia for soil improvement, but was difficult to eradicate from some soils.

GLEDITSIA (OR GLEDITSCHIA), Linnaeus.

Five or six species, trees, in eastern North America and Asia. One in Alabama. (Another in Georgia and Mississippi.)

G. triacanthos L., the familiar honey-locust, ranges in size from a fairly large tree in forests to a large shrub in the edges of fields. It seems to be native in alluvial bottoms and on limestone outcrops, in the Tennessee Valley, black belt, and upper part of the Mobile delta. But, as in the case of the sassafras, wild cherry, and persimmon, most of the specimens one sees now are weedy ones. It is often found on roadsides (and may have been planted near dwellings) and edges of fields, in the regions where it grows naturally, and also in others where it can hardly be native. The specimens around fields are usually small, and many of them apparently too young to bear flowers and fruit; and they have been treated as small trees or shrubs in some of the foregoing regional lists.

FABACEAE (also called PAPILIONACEAE). Pea Family.

About 325 genera and 5,000 species, in temperate and warm regions. This family, like the grasses, contains many plants that are important as food for man and beast, and also many weeds. There are also quite a number of ornamentals, and plants useful in other ways.

CROTALARIA, Linnaeus. (*Rattle-pods*.)

About 250 species, mostly tropical. Four species were reported from Alabama by Mohr, three native and one a ballast weed; and one or two others may have escaped from cultivation since.

C. angulata Mill. (*C. ovalis* Pursh; *C. rotundifolia* (Walt.) Poir.³¹) "Rabbit bells." Grows in dry open woods, mostly southward, and often also in sandy old fields. In Autauga County I have been shown a place where it was abundant the year after a severe forest fire.

In recent years one or more showy tropical species have been cultivated for winter cover, soil improvement, etc., in the southern parts of the state, and they occasionally escape.

MEDICAGO, Linnaeus. (*The Medics.*)

About fifty species, natives of Europe and Asia. Seven were reported from Alabama by Mohr, but four of them only on ballast.

M. sativa L., alfalfa (formerly called lucerne), is an important forage plant, brought from Europe, cultivated in the black belt and occasionally elsewhere, and rarely escaping to roadsides. Torrey and Gray reported this as introduced in New York and Pennsylvania as long ago as 1838 (1:321): though Darlington the year before (406) knew it only as a cultivated plant in his part of Pennsylvania. But it does not seem to have been recognized as a weed in the South until many years later.

M. Arabica (L.) All. (*M. maculata* Sibth.), the bur clover, is an abundant roadside weed in the northern two-thirds of the state, blooming in spring and disappearing in summer. It has some value as a winter cover crop, and is often recommended for that purpose. It does not seem to have been recognized as an American weed in Elliott's time, but Torrey and Gray said of it in 1838 (1:321):—"Near New Orleans, . . . Red River, Louisiana. . . . Introduced." Chapman did not mention it in 1860, and in 1883 and 1897 added nothing to what Torrey and Gray knew about it.

M. lupulina L. (black medic) grows on dry roadsides, etc., less abundantly than the preceding, but blooms well into the summer, when the other has disappeared.

Trigonella Monspelica L., native of Europe, was reported by Small in 1933 (683) from "dry soils, fields and hillsides," in the coastal plain of Alabama, but without mention of any specific locality.

MELILOTUS, Jussieu. *The Sweet Clovers.*

About twenty species, natives of the Old World. Three introduced in the eastern United States, all found in Alabama.

M. alba Desr. (*M. leucantha* Koch), the (white) sweet clover, has long been extensively cultivated for forage and honey in some of the northern

³¹For a note on the change of name see Fernald, *Rhodora* 40:436. 1938.

states, particularly in the upper Mississippi Valley; but it seems to be a more recent arrival in the South. Nuttall said of it in 1818 (2:104):—"Naturalized or indigenous in the lower part of the state of Delaware." It was not known to Elliott, except for a specimen sent him from New York (2:200). Darlington did not know this, or any other species of *Melilotus*, in Chester County, Pennsylvania, in 1837, even in cultivation; But Torrey and Gray said of it in 1838 (1:321):—"Rich soils, along rivers, New York! and New England! Introduced." Chapman in 1860 (90) and 1897 (98) said "Cultivated grounds. Introduced." without specifying any locality.

In Alabama it has been cultivated most in the black belt, and it is now one of the most abundant roadside weeds in that region (as in Iowa and neighboring states), and is common in several others, preferring dry calcareous soils. It blooms mostly in early summer. It is a biennial, but some 20 or 25 years ago an annual variety, called "Hubam", was developed in Alabama, and hailed as a bonanza. Little has been heard of that in recent years, however.

M. officinalis (L.) Lam., the yellow sweet clover, resembles the preceding, but differs principally in having yellow flowers. It is much less abundant, and is found mostly in the northern parts of the state.

Nuttall said of it in 1818 (2:104):—"Naturalized or indigenous in the state of New York." Four years later Elliott had found it in South Carolina, and said (2:199-200):—"This plant, a native of Europe, is now completely naturalized in the neighborhood of Charleston. It grows very luxuriantly, but no species of domestic stock appears willing to eat it." (However, he may possibly have confused it with *M. Indica*, our other yellow-flowered species, which he did not mention.) Torrey and Gray said of it in 1838 (1:320):—"Rich alluvial soils, Canada! to Georgia! Introduced." Chapman in 1860 (90) attributed it to cultivated ground without specification of locality, as he did *M. alba*.

M. Indica (L.) All. (*M. parviflora* Desf.) is another yellow-flowered species, smaller than the preceding, and found mostly in the southern parts of the state. Torrey and Gray said of it in 1838 (1:320):—"Near New Orleans, . . . Doubtless introduced." Chapman did not mention it in 1860, and in 1883 (614) seemed to have no more information about it than Torrey and Gray did more than four decades before. In 1897 he specified no locality for it.

TRIFOLIUM, Linnaeus. *The Clovers.*

About 275 species, mostly in the North Temperate zone. Seven were reported from Alabama by Mohr, one of them only on ballast, and most of the others introduced. Pieters in 1924 (see bibliography) reported seven additional species from a small area in Wilcox County, but those, with two exceptions, are not listed here, because they may have been only temporarily established, like the ballast plants. Some interesting notes on some of our species, from books over 100 years old, will be quoted in the next few pages.

T. reflexum L. (buffalo clover) is supposed to be native, but I have seen it mostly on roadsides and in old fields, in the northern half of the state; and only a few times at that.

Elliott said of it in 1822 (2:202):—"This species of *Trifolium*, which under the name of Buffalo Clover, grows I believe freely in the upper districts of Georgia, is rare in the low country. Its leaves and flowers are larger than those of any other of our species. With our cattle it does not appear to be a favorite food. Grows in close soils. Flowers April-May." Torrey and Gray, in 1838, seemed to regard it as native, but Chapman in 1860 had a different idea, for he said of it (91):—"Waste places and pastures, Florida to North Carolina, and northward." In 1897 (99) he gave the same habitat, but no distribution.

T. pratense L., the red clover, native of Europe, is a very popular hay plant in the North, and also an important source of honey, but it is not abundant in the latitude of Alabama. It is found on roadsides, etc., perhaps oftenest in towns. It blooms in spring and summer.

Mease in 1807 (223-224) gave some valuable notes on the history of this species in America, as follows:—"1. Red clover. This important grass was introduced into Pennsylvania about sixty years ago, but excited little attention until twenty years afterwards, when its vegetative power was discovered to be increased to a most incredible degree, by the apparent magical effects of gypsum. Since that time it has become an essential article in the rotation of the crops of the state, and has diffused more substantial wealth than would have resulted from the discovery of a gold mine.

"The cultivation of this grass is now beginning to progress southward, and in passing through Maryland and Virginia, spots of clover may be occasionally seen; but, it is to be regretted, that the planters of these states do not see their interest in cultivating this excellent exotic in an extensive manner; instead of continuing the exhausting and precarious tobacco plant, or in taking repeated crops of wheat or Indian corn."

Elliott said of it in 1822 (2:202):—"This, perhaps the most valuable species of *Trifolium*, is found occasionally in the low country of Carolina, like the preceding species [*T. repens*] it grows luxuriantly in the spring but disappears during the steady heat of summer.³² Grows in close rich soils. Flowers April-May." Darlington said of it in Pennsylvania in 1837 (407):—"Cultivated fields, and meadows: common. . . . This is a most valuable plant; and diligently cultivated by all good farmers. It is also extensively naturalized." Chapman in 1860 (91) said:—"Around dwellings. Introduced, but scarcely naturalized, at least in the low country."

³²This is not true in the North, for example in New England and Michigan.

T. repens L., the white clover (in recent years often called white Dutch clover), is also supposed to be of European origin. It is common practically throughout the state, on roadsides, in yards, small pastures, etc., often in damp soil.

Mease in 1807 (221) expressed some ideas about the indigeneity of this species that conflict with those commonly held at the present time, but are worth quoting nevertheless. He said:—"White clover is undoubtedly a native plant of the United States. In every part of America the ground is spontaneously covered with this grass, 'growing frequently with a luxuriance that art can rarely equal in Europe.' [This from a British publication cited in a footnote.] Even in the Indian country, far westward, fields are seen covered with this grass, the nourishing quality of which is not exceeded by any other within our knowledge. The flesh of sheep fattened on this grass is peculiarly high flavoured."

Elliott, writing fifteen years later (2:201) was not so enthusiastic about it. He said:—"Grows in close damp soils. Flowers March-May. . . . This species of clover is now very much diffused in the low country of Carolina, and grows very luxuriantly in the spring in soils adapted to it. In summer it disappears. It is however eaten but sparingly, and apparently with reluctance, by stock of any description. It affects very sensibly the salivary glands, sometimes producing complete salivation." Darlington's comments on this in 1837 (407-408) recall those of Mease thirty years before. He said among other things:—"Pastures, woodlands, &c. very common. . . . This species seems to be common to Europe and America; and the soil, in this country, is so full of the seeds, that the plant springs up wherever, and whenever, circumstances are favorable to germination. It is rarely, if ever, cultivated, here; but it is esteemed an excellent pasture,—though Mr. Elliott speaks unfavorably of it, in the South. Torrey and Gray said of it in 1838 (1:316):—"Pastures and waste places, sometimes in woodlands: common throughout North America. April-Nov."

Elliott's comment on the dislike of animals for white clover seems to be borne out by an observation I made in Tuscaloosa in 1919. On May 4th of that year I photographed a luxuriant stand of it, in full bloom, in a vacant lot where there were some cows pastured, and they did not seem to be eating it at all.

T. Carolinianum Mx. A small winter annual, blooming in spring and disappearing in summer, and not highly esteemed as a forage plant. Alleged to be native, but grows only in weedy places, such as roadsides and vacant lots. It was recognized as a weed long ago. Elliott said of it in 1822 (2:200-201):—"Grows in dry sandy pastures. Flowers March-May." (Localities not specified.) Torrey and Gray said in 1838 (1:316):—"Sandy fields, S. Carolina! to Florida! west to Arkansas! and Texas! March-May." Chapman in 1860 (91):—"Fields and pastures, Florida to North Carolina, and westward."

T. resupinatum L. Native of Europe. Known to Dr. Mohr only as a ballast plant, seen near Mobile in June, 1887. But it is one of the seven clovers reported from near Snow Hill by Pieters in 1924; and in 1942 and 1943 I found it abundant in a pecan grove on the asylum grounds near Tuscaloosa, where it blooms in April and May. There it might have been planted, but it seemed to be maintaining itself pretty well, and it was spreading outside the fence a little. Deam in 1940 (595) reported it as found near Indianapolis in 1932, but killed by a severe winter $3\frac{1}{2}$ years later.

T. incarnatum L., the crimson clover, also European, has been cultivated extensively for soil improvement in recent years, especially in the Tennessee Valley, and it sometimes strays to roadsides, but can hardly be considered as permanently established. Small in 1933 (685) reported a related species, *T. angustifolium* L., from the Mediterranean region, in Montgomery County.

T. arvense L. (Rabbit-foot clover.) Another European weed, supposed to be common in the eastern United States, but evidently better established in the North than in the South. Nuttall in 1818 (2:105) called it native, and Elliott four years later apparently knew nothing to the contrary, for he said of it (2:203):—"Grows, but I believe sparingly, in the upper districts of Carolina." Torrey and Gray said in 1838 (1:313):—"Old fields, &c., Canada! to Florida! Introduced?" Chapman in 1860 (91) and 1897 (98):—"Old fields, chiefly in the upper districts. Introduced."

But Dr. Mohr had no record of it in Alabama, and I never saw it in the state until May 22, 1936, when I found it abundant between the sidewalk and street for a block or two in Akron, Hale County. In subsequent years I have seen it at the same place, and also in two or three other counties farther north; but it is certainly not common here.³³

T. lappaceum L. Native of the Mediterranean region. I have not met with this yet, but it is one of the clovers reported from near Snow Hill by Pieters in 1924, and Small in 1933 attributed it to waste places and roadsides in the coastal plain of Alabama and Mississippi. In recent years it has been found growing spontaneously in the black belt, and has been cultivated for forage, under the name of "lappacea clover," and highly recommended by some agricultural writers.

The remaining species, with pale yellow flowers in small heads, have been put by some botanists in a separate genus, *Chrysaspis*.

T. procumbens L. A small European species with yellow flowers, called hop clover in northern books. Common on lawns, roadsides, etc., blooming

³³In the 90's I was familiar with it in Athens, Georgia, where it is abundant. (See Bull. Torrey Bot. Club, 27:329. 1900.) But on a visit there in June, 1937, after noting its scarcity in Alabama, I watched for it along the roadsides in traveling by bus back to Atlanta, and did not see it more than a few miles from Athens.

in spring and disappearing in summer. Two other related species, *T. agrarium* L. and *T. dubium* Sibth., may occur in similar places, but I have not taken time to distinguish them readily.

None of these yellow clovers were mentioned by Elliott, and they must have been rare or wanting in the South in his day. Darlington in 1837 (408) found *T. procumbens* gradually spreading in sandy soils in Chester County, Pennsylvania. Torrey and Gray said of *T. procumbens* in 1838 (1:316-317):—"Sandy fields and roadsides, Massachusetts! to Virginia! Introduced from Europe." Chapman said of it in 1860 (91) and 1897 (98):—"Waste places; more common in the upper districts. Introduced. May."

The observations of Torrey and Gray on *T. agrarium* are the same as for *T. procumbens*, except for the substitution of Pennsylvania for Virginia. Chapman did not mention it even in 1897; and *T. dubium* was not recognized by either Torrey and Gray or Chapman.

PSORALEA, Linnaeus.

This genus, formerly regarded as containing about 100 species, is subdivided by Small, and our species with about half a dozen others put in the genus *Orbexilum* of Rafinesque. But the old name may as well be retained for the present, as it will be more familiar to most readers.

P. pedunculata (Mill.) Vail. (*P. melilotoides* Mx.) Native in dry woods and prairie-like places, but grows also along roads and railroads, where it could hardly have been originally. It is fairly common in most parts of the state, and blooms in early summer.

PETALOSTEMON, Michaux. (*Prairie clovers.*)

About 50 species, all North American. Dr. Mohr reported six species from Alabama, one of which is now referred to the next genus. They are native on limestone flats, in prairies, etc., but one or two, particularly *P. candidus* (Willd.) Mx., can be found on roadsides in the black belt.

KUHNISTERA, Lamarck.

Species variously estimated at one to three, all in the coastal plain of the southeastern United States. One in Alabama, and two other little-known ones credited to Florida. Formerly included in *Petalostemon*, but distinct enough.

K. pinnata (Walt.) Kuntze. (*Petalostemon corymbosus* Mx.), sometimes known as "summer farewell," because it blooms in late summer, is unquestionably native in poor dry sand in some of the southern counties, but also abounds in sandy old fields in some of them.

ROBINIA, Linnaeus.

About twenty species, trees and shrubs, North American.

R. Pseudo-Acacia L., the black locust, is unquestionably native in our mountains, and perhaps also on bluffs as far south as the black belt. It has fragrant cream-colored flowers in April, and is sometimes cultivated for ornament, and also for shade, posts, erosion control, etc. It has spread from cultivated specimens or otherwise far outside its natural range, at least as far as northern Florida and southwestern Mississippi, and is often found on roadsides and in old fields. It is rather a small tree at best, seldom more than a foot in diameter, and the escaped specimens are often little more than shrubs, but they can bloom when quite small. It spreads by roots, and in old fields it often forms thorny thickets which are very disagreeable to walk through.

In Pennsylvania likewise it seems to be native in the mountains and introduced elsewhere, as observed by Darlington in his flora of Chester County in 1837. He said of it there (410):—"Meadows; fence-rows, &c. frequent. . . . This tree, though frequent here, and very abundant on the Mountains,—has never appeared to me like an indigenous plant in this County. . . . The tree is often planted about houses."

One or two smaller pink-flowered species are occasionally cultivated for ornament, and may persist without re-seeding themselves long after the house has disappeared, something like the crepe myrtle.

GLOTTIDIUM, Desvaux.

One species, and perhaps a variety in addition. A large annual plant, with stems almost woody.

G. vesicarium (Jacq.) Mohr. (*Sesbania vesicaria* (Jacq.) Ell.; *Glottidium Floridanum* (Willd.) Desv.) Formerly known only from South Carolina to Florida and Alabama, and supposed to be native, but Small's Manual extends its range to North Carolina and Texas, and says it is evidently introduced from the West Indies. It grows in damp or rich soils, commonly on roadsides or in waste places, in the coastal plain. Blooms in summer.³⁴

³⁴For additional notes on this species see Elliott, Bot. S. C. & Ga. 2:222. 1822; Harper, Bull. Torrey Bot. Club 27:429. 1900; 28:472. 1901. In the last, published late in August, 1901, I used the name *G. vesicarium*, believing it to be a new combination, and that name was credited to me as late as 1933, in Small's Manual. But while my note was in course of publication the same combination appeared a few weeks earlier in Mohr's Plant Life of Alabama, but erroneously credited there to Desvaux, who described the genus *Glottidium*, without re-naming the species.

SESBAN[IA], Adanson. (No common name?)

About 15 species, in warm regions. One or two in Alabama.

S. Emerus (Aubl.) Britton & Wilson. (*S. macrocarpa* Muhl.) A tall annual with stem almost woody, similar in general appearance to the preceding, but having very different pods. It has a somewhat similar distribution, but seems to prefer more calcareous soils, and is commonest in the black belt. It is presumably introduced from tropical America.

Small in his Manual, 1933 (703), describes another species, *S. exaltata* (Raf.) Rydb., which seems to differ from this but slightly, and is said to range from Mississippi to Missouri and Texas. It should be looked for in Alabama.

DAUBENTONIA, DeCandolle. (No common name?)

About five species, mostly tropical American. One (or two?) in Alabama.

D. punicea (Cav.) DC. (and perhaps one or two other closely related species). A large woody herb or short-lived shrub, with conspicuous red or yellow flowers in summer, followed by dry brown four-winged hanging pods. Native of tropical America, fairly common in waste places along the coast, and occasional farther inland. I have seen it from trains at Perdido, Baldwin County, several times since 1911, and also in a few places in the black belt.

It seems to have been first brought to this country for ornamental purposes, but it must be a comparatively recent arrival in the southeastern states, for Chapman did not mention it until 1883. He said of it then (616):—*Daubentonia punicea*, DC., a Brazilian shrub, . . . was introduced into the gardens of Apalachicola many years ago, and is now permanently established in the lower part of the city." In 1897 (106) he called it *Sesbania punicea*, and said of it "Low grounds. Sparingly introduced." C. L. Pollard reported it from the coast of Mississippi in 1897.³⁵ In 1918 I found it common in the coast prairies of eastern Texas,³⁶ where it looks almost like a native, and may have been derived from some other source than the plants originally cultivated at Apalachicola.

PUERARIA, DeCandolle.

About ten species, Asiatic. One cultivated and escaped in Alabama.

P. Thunbergiana (Sieb. & Zucc.) Benth. Kudzu. A Japanese vine, widely cultivated for forage in the South in recent years. It is very ready to

³⁵Bull. Torrey Bot. Club, 24:151-154. March, 1897.

³⁶Same, 47:311. 1920. For additional notes in its occurrence in Alabama see our Monograph 9 (1928), p. 223.

run over its boundaries, and climbs over trees or anything else in its path, something like the Japanese honeysuckle, but apparently does not re-seed itself here. No specific localities in Alabama can be cited at this time, but it tends to spread anywhere where it is cultivated, and become somewhat of a nuisance.

BRADBURYA, Rafinesque. (*Centrosema*, Bentham)

About thirty species, American. One in Alabama.

B. Virginiana (L.) Kuntze. (Butterfly pea?) A herbaceous vine with large and rather pretty blue flowers, which hang upside down. Nuttall in 1818 (2:118) called it "the largest papilionaceous flower in the United States." Presumably native, but grows usually in old fields, thickets, etc., mostly in the coastal plain, where it is fairly common. Blooms in summer.

MARTIUSIA, Schultes.

About eight species, American. Formerly included in *Clitoria*, a genus represented in the tropics of both hemisphere. One in Alabama.

M. Mariana (L.) Small. (*Clitoria Mariana* L.) ("Clabber-spoon.") Resembles the preceding in size and color of flowers, which are likewise upside down, but the plant is usually erect and only a foot or two in height, and the flowers are differently shaped. Its distribution and habitat are much like those of our *Bradburya*, except that it ranges farther inland, and is found in dry woods oftener than in weedy places.

STROPHOSTYLES, Elliott.

About six species, American. Formerly included in *Phaseolus*, the beans. Probably two in Alabama, but if so they are much alike.

S. umbellata (Muhl.) Britton (and perhaps another species). Probably native in dry woods, but often in sandy old fields, etc. Widely distributed, but mostly in the coastal plain.

ZORNIA, Gmelin. (No common name.)

About a dozen species, mostly tropical American. One in Alabama.

Z. bracteata (Walt.) Gmel. (*Z. tetraphylla* Mx.) A small plant of peculiar appearance, prostrate, with four leaflets and peculiar jointed pods. It may be native in dry sandy pine woods, but it is usually seen on sandy roadsides, in old fields, etc., in the coastal plain, as far inland as Elmore and Autauga Counties.

MEIBOMIA, Heister. (*Desmodium*, Desvaux.)

About 160 species, natives of all continents except Europe. About 20 reported from Alabama, nearly all native, but some have weedy tendencies, and one is an introduced weed, escaped from cultivation. They are commonly called beggar-lice in the South, and sometimes beggar-ticks and beggar-weed.

Our weediest one is **M. purpurea** (Mill.) Vail (*Desmodium tortuosum* Desv., formerly called *D. molle* DC.), the "Florida beggar-weed." It seems to be widely distributed in the tropics, but apparently was not brought to the United States until after the Civil War. The earliest mention of it in this country that has come to my attention is in Henderson's Commonwealth of Georgia, 1885 (344-345), as follows:—

"There is a forage plant now rapidly coming into notice and popularity, in the lower part of the State, and known as Beggars Lice. It belongs to the genus *Desmodium*, and on good land grows to the height of six or eight feet. The crop comes on after a corn crop generally, and spontaneously furnishes, in the shape of a most acceptable forage, an amazing amount of food for stock. Every hay eating animal seems to devour it not only with relish, but greedily. It is not known how far above the tier of counties coterminous with Florida this valuable forage plant will thrive, but certainly all those who are located in its habitat are most fortunate in their possession of this invaluable resource."

Neal said of it in 1890 (14):—"I include, very reluctantly, the Florida Clover (*Desmodium molle*) in the list of weeds. It is by far the best green forage plant we have at present, and the cow, sheep, goat, hog or horse that will not recuperate in a field of this weed, is past help from other food. As an improver of soil it is of the greatest value in Florida, and its habit of not appearing until the laying by of the corn crop, is unique, entitling it to a front rank as a beneficial plant. Still, once in a field, it is there to stay, and its tenacious pods at times are very troublesome."

It was not known, at least as a wild plant, in Alabama in Dr. Mohr's time, and it is not even credited to the state in Small's Manual, 1933. I first saw it in the southern edge of Georgia about forty years ago, and in northern Florida several years later. It is now fairly common in sandy fields in southeastern Alabama, where it blooms in late summer, like our other species of the genus.

LESPEDEZA, Michaux. (*The Bush-clovers*.)

About forty species, in North America, Asia and Australia. About ten in Alabama, some native, some introduced, and some doubtful.

The commonest introduced one is *L. striata* (Thunb.) H. & A., the Japanese clover. Its history in this country is somewhat obscure. It was not mentioned by Chapman in 1860, and according to Mohr it was first observed in Montgomery County in 1867 and in Mobile County in 1869.³⁷ But Dr. Gray said in 1879 (163) that it was first noticed in Alabama and Georgia about 35 years before he wrote, which would be about 1844. And Dr. Gattinger, in his *Flora of Tennessee*, 1903 (p. 107), said it had been in the remotest mountain settlements of Tennessee for fifty years, and he believed it to be indigenous. Chapman said of it in 1883 (616):—"Fields and waste ground. Introduced from Asia." Dr. H. A. Mettauer, of Macon, Georgia (born in 1829), told me in 1902 that it first came there many years before in the shape of packing around some Chinese or Japanese crockery.³⁸

It is now common practically throughout Alabama, along roads and railroads, in old fields and pastures, etc.; and as it is valued for forage, its growth is encouraged. It is an annual, but blooms all summer, and re-seeds itself abundantly.

Of our several native species, *L. repens*, *L. Virginica*, *L. capitata sericea*, and perhaps one or two others may be said to show weedy tendencies. Some other foreign species cultivated for forage in recent years may escape

VICIA, Linnaeus. *The Vetches.*

About 125 species, widely distributed. Eight or ten in Alabama, some native and some introduced.

Out commonest weedy one is *V. angustifolia* Roth (or its variety *segetalis* (Thuillier) Koch), native of Europe. It was treated as a variety of *V. sativa* L., another European species, with considerably larger flowers, by Torrey and Gray in 1838 (1:272), who knew it only from Bordentown, New Jersey. If it was in the southeastern states it was confused with *V. sativa* by all the 19th century southern botanists, including Mohr; and for that reason I did not identify it correctly myself until within the last 25 years or so. The label in Dr. Mohr's herbarium indicates that he first found it in 1879. It now abounds on roadsides and in vacant lots, especially in and near towns, where it flourishes in spring and dies and disappears in summer.

V. sativa is apparently rather rare in the South. About a mile north of Russellville, on the side of the main highway, on the afternoon of April 26, 1941, I found a dense mass of *V. angustifolia*, interspersed with numerous specimens of another vetch indistinguishable from it as to foliage, and having flowers with

³⁷See Mohr (1901), pp. 54, 88, 576, 829. He said it was first observed in the United States at the port of Charleston during the second quarter of the 19th century, and was spread rapidly over thousands of square miles by the droves of cattle and horses that followed the armies during the Civil War.

³⁸See Ann. N. Y. Acad. Sci., 17:116. 1906.

about the same color pattern (reddish purple), but about twice as large; and this has been identified as *V. sativa*. But on the morning of April 28, 1943, at the same spot, all the large-flowered plants had straw-yellow flowers! I had seen this yellow form near Warm Springs, Georgia, in May, 1929, but did not collect it then because I thought it might be an escape from cultivation. I saw it also on a roadside on Shades Mountain, a few miles south of Birmingham, on the afternoon of June 2, 1943.

Darlington said of it in Chester County, Pennsylvania, in 1837 (425):—"Cultivated grounds: not common. . . . This is occasionally to be met with; but certainly, I think, not a native, here." But he may possibly have been dealing with *V. angustifolia*, which was found in New Jersey about the same time, as stated above.

V. villosa Roth, the hairy vetch, often cultivated for winter cover in the southern parts of the state in recent years, occasionally spreads to adjacent roadsides.

LATHYRUS, Linnaeus.

About 100 species, mostly in the Northern Hemisphere. The sweet-pea, with many horticultural varieties in assorted colors, belongs to this genus. Dr. Mohr reported only one species from Alabama, that presumably native.

L. pusillus Ell., an alleged native species that I have seen only as a weed, grows sparingly on roadsides in the black belt, particularly near Emelle and Livingston in Sumter County, where it blooms in April. I have found no record of an undisturbed natural habitat for it, but it may be native somewhere west of the Mississippi River.

It was first described by Elliott in 1822 (2:223), as the only species of the genus in his territory. He had specimens from only one locality, not far from Charleston, and he did not indicate their habitat. He commented on its close relationship to a European species, but did not say how it differed. Torrey and Gray said of it in 1838 (1:273):—"S. Carolina, Elliott: common also in Arkansas, . . . Texas and Western Louisiana." Small in 1933 gave its range as Florida to Texas, Kansas and North Carolina. If it was native in South Carolina and also west of the Mississippi River it should be in Georgia, too, but I never met with it there, although I have been in every county in the state.

L. hirsutus L., a European species, similar to the preceding, was credited by Small in 1933 only to Mississippi. But in recent years it has been found wild in the black belt, and dubbed the "Caley pea," after A. F. Caley, who has promoted it as a forage plant. I have not seen it.

GERANIACEAE. Geranium Family.

About a dozen genera and 470 species, natives of temperate regions. The best-known members of this family are the cultivated geraniums, with many varieties and hybrids, belonging to the genus *Pelargonium*.

GERANIUM, Linnaeus. (*The Cranesbills, etc.*)

About 180 species, in temperate regions. Two in Alabama, one an attractive wild flower, and the other an insignificant weed.

G. Carolinianum L. Said to range nearly throughout the United States, and recently attributed to the West Indies and Mexico also. It is treated as a native in all our manuals, but apparently it is always a weed, and has been since the earliest reports on it. Linnaeus described it in 1753 from Virginia and Carolina, without indicating any habitat. Elliott said of it in 1822 (2:257):—"Grows in all cultivated grounds very abundantly." Darlington said of it in Pennsylvania in 1837 (393):—"Fields; along Brandywine: not common. . . . This is somewhat rare,—and has the appearance of a stranger, here."

Its preferred habitat in Alabama, where it is common, except in the southern quarter of the state, seems to be roadsides, and its second choice fields that have not been cultivated for a year or two. Like several other of our annual weeds, it blooms in spring and disappears in summer.

I found it in Middle Georgia in the 90's, but not in the Altamaha Grit region (which is in the middle of the coastal plain) a few years later; though it may possibly have arrived there since. Hitchcock in 1899³⁹ reported it from two counties in northern Florida, and I have seen it in the Tallahassee red hills,⁴⁰ in the same latitude, but not farther south that I can recall.

Our native species, *G. maculatum* L., is a pretty spring-flowering perennial, growing in rich woods, and never weedy here, though it might perhaps persist for a year or two after the trees around it are cut. But on a visit to Massachusetts in June, 1940, I was surprised to see it blooming freely in open places, along railroads and in near-by fields, in the vicinity of Boston, as if it was becoming a weed there, as several of our native plants have done here.

³⁹Trans. Kansas Acad. Sci., 16:114. 1899.

⁴⁰Ann. Rep. Fla. Geol. Surv., 6:275. 1914.

OXALIDACEAE. Wood-sorrel Family.

The genera are variously divided by different authorities, but there are about 300 species, mostly tropical. All our species were put in *Oxalis* until about forty years ago, when Dr. Small split that genus into several, differing in color of flowers, and in some less obvious characters. They will be retained in *Oxalis* here, for that name will be most familiar to most readers.

OXALIS, Linnaeus. *The (Wood) Sorrels.*

In the broadest sense this includes about 200 species, most of them in South America and South Africa. Some of them are cultivated for ornament. Six or eight species are to be expected in Alabama, some native, some alleged native, and some introduced. Most of them belong to the yellow-flowered group, called *Xanthoxalis* by Small.

The commonest yellow one, which seems to be always a weed, was formerly referred to *O. stricta* L., but that species has been split up, and our weedy yellow sorrels may represent two or three supposed distinct species. Whether it is one species or more, it is common along roads and railroads, and in waste places generally, practically throughout the state. It blooms from early to late spring, and perhaps sporadically at other times.

Darlington said of it in 1837 (393-394:—"Fields, and woodlands: very common. . . . This plant . . . varies exceedingly in size, and somewhat in hab.t,—being often of humble growth, diffuse, and occasionally almost prostrate: but I can discover nothing in my specimens to warrant a specific distinction"

O. violacea L. (*Ionoxalis violacea* Small), with pale purple flowers, is apparently native in dry open woods and similar habitats, but also has weedy tendencies.

RUTACEAE. Rue Family.

About 110 genera and 950 species, mostly trees and shrubs, most numerous in Africa and Australia. The various citrous fruits (*Citrus* and related genera) are important members of this family.

XANTHOXYLUM, Linnaeus. (also spelled *Zanthoxylum*.)

Species variously estimated at 80 to 150, mostly in warm regions. Two in Alabama, native shrubs or small trees, one of which has weedy tendencies.

X. Clava-Herculis L. (*X. Carolinianum* Lam.) (Called prickly ash, *Hercules club* and *toothache tree* in northern books, and "pillenterry" in the southeastern corner of Virginia.) Seems to be native in calcareous bottoms in the black belt, on limestone farther south, and on shell mounds near the coast, but nowhere very common. Also grows on roadsides, etc., in some of the same regions, where it might have escaped from cultivation.

Ruta graveolens L., the English rue, a half-woody and very ill-scented plant, cultivated occasionally by old settlers for medicinal purposes, was found in May, 1942, established in a rocky pasture about a mile east of Iebanon, the old county-seat of DeKalb County, probably near where a house had been long before. (See under *Delphinium Ajacis*, above.)

SIMARUBACEAE. Quassia Family.

About 30 genera and 150 species, mostly tropical trees and shrubs.

AILANTHUS, Desfontaines.

About three species, Asiatic trees. One cultivated and escaped in Alabama.

A. altissima (Mill.) Swingle. (*A. glandulosa* Desf.) "Tree of Heaven." Native of China. Cultivated for shade in many eastern states, but has little to recommend it but rapid growth, for it is a disreputable-looking and ill-scented tree. The odor of the staminate flowers is especially disagreeable. Escapes to roadsides, etc., around cities and towns, (perhaps more frequently around New York than anywhere in Alabama), much like *Papyrus*, already mentioned. Occasionally it gets pretty well out in the woods, and could be mistaken for a native tree by any one who was not acquainted with it.

MELIACEAE. Mahogany Family.

About 50 genera and 700 species, nearly all tropical trees and shrubs. Several of them, especially the mahogany (*Swietenia*) yield valuable timber.

MELIA, Linnaeus.

About 25 species, mostly Asiatic. One cultivated and escaped in Alabama.

M. Azedarach L. Chinaberry. A medium-sized tree, very commonly cultivated for shade in the South, and often escaping to edges of fields, partly cleared woods, etc., mostly in the coastal plain. The variety *umbraculifera*, known

as umbrella china, is preferred for shade, but it seldom escapes, or if it does it must soon revert to the common form.

Mease as long ago as 1807 (286) discussed the medicinal properties of "*Melia azedarech*, or pride of India, which although not a native tree, is now naturalized amongst us, especially in the southern States." Elliott in 1817 (1:475-476) devoted about a page to it, saying in part:—"This tree, a native of Persia, is now perfectly naturalized in our country, springing from seed in cultivated land and around enclosures with more freedom than most of our native trees. It is now generally cultivated around buildings and in yards, and in many respects merits this preference. . . . Grows in most soils, preferring those which are light. . . . Flowers April." Nuttall said of it in 1818 (1:276):—"Introduced into the southern states from India, and planted in vistas; in many places it is almost naturalized."

Torrey and Gray said of it in 1838 (1:241):—"Naturalized in the Southern States! Introduced from Asia!" But Chapman in 1860 (62) mentioned it only incidentally, as if it was known only in cultivation. Small in 1894,⁴¹ as if to offset Chapman's conservatism, reported it as naturalized around Stone Mountain, Georgia. Chapman said of it in 1897 (64):—"Introduced by the elder Michaux a hundred years ago, and now a common shade tree around dwellings." But still no indication that it had run wild, as it now commonly does.

An interesting feature of this tree is that it has few or no insect enemies (as was stated in our Monograph 9). This was commented on by Hudson Strode, who found it cultivated for shade in Argentina. See his book, "South by Thunderbird," 1937 (pp. 206, 207).

EUPHORBIACEAE. Spurge Family.

About 250 genera and 4,000 species, widely distributed, especially in warm dry regions. Includes a few ornamental and useful plants, some very poisonous ones, and many weeds.

PHYLLANTHUS, Linnaeus.

This genus has been variously divided, but as interpreted by Small in 1933 contains about 60 species, mostly tropical herbs. One in Alabama.

P. Carolinensis Walt. Supposed to be native, but grows also in the West Indies, from which it might have been introduced. Found mostly in low fields, scattered over the state, but nowhere common. It is rather small, though, and might easily be overlooked. It blooms in late summer.

⁴¹Bull. Torrey Bot. Club, 21:16. Jan. 1894.

CROTON, Linnaeus.

About 600 species, mostly tropical. (The tropical shrubs called Croton, cultivated for their variegated leaves with many color patterns, are now put in the genus *Codiaeum*.) About half a dozen species have been reported from Alabama, one a rare shrub, known in only two counties, blooming in early spring, and the others usually if not always weeds, blooming in late summer.

C. monanthogynus Mx. is fairly common on dry exposed limestone outcrops in the Tennessee Valley, but it is also a weed along railroads, etc., there and farther south, as in Tuscaloosa County and the black belt.

C. capitatus Mx. is common in Texas, where it may be native, but in Alabama it is always a weed, principally in dry soil along roads and railroads. It is common in spots, but not seen every day. Michaux described it in 1803, from Illinois, and Nuttall said of it 15 years later (2:225):—"Throughout the Illinois territory and Louisiana to the sources of the Missouri." It was not reported from the southeastern states by Chapman until the second edition of his Flora, in 1883; and it may have come into Alabama since the Civil War. Chapman said of it in 1883 (648), and again in 1897 (430):—"Georgia, along roadsides, and westward." When I reported it from Georgia in 1900⁴² it was considered rare there.

C. glandulosus L., a tropical weed with several varieties, grows along railroads, in vacant lots, etc., especially in the southern half of the state, where it is common in most towns. It must have been introduced into the United States at a comparatively early date. Elliott said of it in 1824 (2:648):—"Grows in all cultivated land, very common. Flowers, June-October."

C. Texensis (Klotzsch) Muell. Arg., said to be native in Texas and some neighboring states, was reported by Mohr from waste places in Birmingham and Dadeville.

ACALYPHA, Linnaeus.

Over 200 species, mostly tropical. A few are cultivated for their colored foliage. Three or four grow in Alabama, all weeds, though most of them are alleged natives.

A. Virginica L. Dry old fields, roadsides, etc., pretty widely distributed over the state. Elliott said of it in 1824 (2:645):—"Grows in cultivated lands and in woods where the soil is dry and fertile, very common. Flowers June-September." Darlington in 1837 (551):—"Pastures; woodlands, &c. common. . . . This plant . . . presents some striking varieties" Chapman in 1860 (405-406):—"Fields and around dwellings, Florida, and northward" Deam in

⁴²Bull. Torrey Bot. Club, 27:336. 1900.

1940 (640) distinguished *A. rhomboidca* Raf. from *A. Virginica*, by apparently rather trivial characters, and said of the former, "This species is a frequent to a common weed in all parts of the state in almost all kinds of habitats;" and of the latter:—"Rather frequent in the unglaciated area and rapidly migrating northward."

A. gracilens Gray. Differs from the preceding chiefly in having narrower leaves, and it was once regarded as being only a variety, which may be the proper classification for it. It has about the same distribution and habitat. Deam (640-641) judged it very distinct, and said of it:—"Our specimens are from pastures and from along railroads."

A. ostryaefolia Riddell. (*A. Caroliniana* of 19th century books.) Long supposed to be native, but grows also in the West Indies and Mexico, and may have been introduced from the southward. A decidedly weedy species, preferring rather rich soils, and found especially in and near gardens, mostly in the coastal plain.

This was identified by Elliott and his contemporaries, and most 19th century botanists, as *A. Caroliniana* Walt., but that is now said to be a mistake. Apparently the first description of it is that of Elliott, in 1824 (2:645-646). He said of it:—"It is to me . . . very rare, and for many years I have had no opportunity of examining it in a living state. Found on Paris Island in cultivated land. Flowers August-October." The name *A. ostryaefolia* dates from Riddell (1835), who had it from "one of the Kentucky hills opposite Cincinnati," and evidently considered it native. Chapman in 1860 (406) said of *A. Caroliniana*:—"Cultivated ground, Florida to Mississippi, and northward. July-Sept."

Deam said of it in 1940 (639):—"Most of our specimens are from truck gardens, cornfields, and fallow fields along or near the Ohio River and near New Harmony. I have never seen it in any other habitat. In recent years it has been introduced farther north in the state. . . . It was first reported from Indiana in 1917."

A. alopecuroides Jacq., native of Latin America, is said by Small (1933) to occur in waste places and on roadsides in the coastal plain of Alabama, but without more precise indication of locality. I have not identified it.

TRAGIA, Linnaeus.

About fifty species, mostly tropical. Three or four in Alabama, one certainly native, and the others probably so, but with weedy tendencies. They bloom in summer.

T. nepetaefolia Cav. (*T. urticaefolia* Mx.) Grows in dry open woods, and also in clearings. Scattered over the state.

T. urens L. (*T. innocua* Walt.) Habitat similar to that of the preceding, but prefers still more open places, and is often found on dry roadsides, especially southward.

CHAMAESYCE, S. F. Gray.

Over 200 species, mainly in warm regions. Formerly included in *Euphorbia*, but seems a well-marked genus, with leaves opposite and usually small and lopsided. Some of the species "go to sleep" at night, by turning their leaves to a vertical plane.

Eight or ten species are known in Alabama, two or three native, but most of them always weedy. They generally bloom all summer, and seem to be annuals. The distinctions between some of the species are pretty fine, or depend on minute characters.

C. serpens (HBK) Small. Probably native of Latin America. Found in a weedy chalk prairie near Rosemary, Hale Co., Aug. 23, 1934. Reported from Mobile County by Mohr.

C. humistrata (Engelm.) Small. An alleged native, but apparently always weedy. Reported by Mohr from Baldwin and Mobile Counties, and I think I have seen it in Montgomery County, if not elsewhere.

C. maculata (L.) Small. (More recently called *Euphorbia supina* Raf. by those who do not separate *Chamaesyce* from *Euphorbia*.) A very common weed, along roads, paths, and railroads, in waste places, and sometimes in fields, nearly throughout the United States. (I have seen it between the rails of railroads in states as far apart as Massachusetts, Michigan, Florida and Texas.) It is variable, and more than one species may have been confused with it. Typically it has numerous radiating branches spreading flat on the ground in places that might otherwise be bare. But when crowded by grass it may grow obliquely upward, sometimes for nearly a foot. The prostrate specimens usually have leaves with a brown spot in the middle, that do not go to sleep at night; but this may not be true of the plants with ascending stems.

C. prostrata (Ait.) Small. Much like the preceding, but its leaves lack the characteristic brown spot, and turn their edges toward the sky at night. Although first described in 1789, when cities were few and small, and still considered native, it seems to be very partial to cities now. I have noted it in Birmingham and Montgomery, chiefly in gardens, on sidewalks, etc. Perhaps its identity has not been established with certainty.

C. hyssopifolia (L.) Small. (Formerly called *Euphorbia nutans*, *E. Preslii*, and *E. hypericifolia*.) A larger species than the four preceding, sometimes as much as three feet tall, and with much larger leaves as a rule, though there are forms with narrow leaves. Probably introduced from Latin America. A very common weed of gardens, roadsides, etc. As in the next preceding species, the leaves assume a vertical position at night, exposing the pale under surfaces.

C. hirta (L.) Millsp. (*C. pilulifera* (L.) Small.) Native of tropical America. Dr. Mohr found it becoming a troublesome weed around Mobile in the last decade of the 19th century, and in the last few years it has appeared in a flower bed on the University campus. I had previously seen it only in Florida, and mostly pretty far south there.

TITHYMALOPSIS, Kl. & Garcke.

These were regarded by most 19th century botanists as typical *Euphorbias*. As recently restricted by Small, the genus contains 18 species, all North American, and 13 of them in the southeastern United States. Only two or three of them were known in Alabama in Mohr's time. One is unquestionably native in rich woods, but the others are more doubtful. A careful study might considerably increase the number of species.

Our commonest species, usually known as **T. corollata** (L.) Small, is probably native in dry open woods, nearly throughout the state but especially northward. But it is also common in old fields, along roadsides, etc.

Darlington said of it in Pennsylvania in 1837 (518:)—"Sandy banks, and fence-rows: frequent. . . . This neat, and rather pretty species, varies considerably in size,—especially in the length and width of the leaves." (This last is true of several other species in this family.)

GALARHOEUS, Haworth. (*Tithymalus*, Adanson.)

Another of the genera formerly included in *Euphorbia*. As now interpreted it includes about 250 species, of wide distribution. About eight species referable to it were listed by Dr. Mohr, a few of them native, but most of them weeds, and a few mere ballast plants.

G. Arkansanus (Engelm. & Gray) Small. (*E. dictyosperma* F. & M.) I have seen this a few times in Colbert County, especially along railroads. Dr. Mohr reported it from Franklin, Hale and Wilcox Counties (all calcareous regions), without indicating its habitat. It may be native somewhere west of the Mississippi River, but hardly in Alabama.

POINSETTIA, Graham.

Another *Euphorbia* segregate, containing about 12 species, mostly tropical American. One is widely cultivated for ornament in greenhouses and in

warm climates. None were known in Alabama in Dr. Mohr's time, but one has arrived or been discovered since.

P. dentata (Mx.) Small. This ranges pretty far west, and might have come from that direction comparatively recently. Chapman, in the second edition of his Southern Flora, 1883 (647), and again in 1897 (424), attributed it to "Rich soil, Tennessee, and northward." On Oct. 4, 1938, I collected it along a street in Toledo, Ohio. Deam, in his Flora of Indiana, 1940, regarded it as a comparatively recent introduction there. I have seen it in Franklin and Marshall Counties, in woods on limestone, but usually along paths or in other suspicious places.

CALLITRICHACEAE.

One genus, as follows.

CALLITRICHE, Linnaeus.

About 20 species, widely distributed, mostly in water or wet places. Mohr reports five from Alabama, all perhaps native, but one is always a weed where I have seen it.

C. Nuttallii Torr. A diminutive spring annual, with creeping stems radiating out an inch or two from the roots. The tiny capsules bury themselves a fraction of an inch in the ground to ripen, somewhat in the manner of peanuts. Grows in damp fields and on lawns. I have seen it on the University campus and in a field near Richmond, Dallas County, and Dr. Mohr reported it from Mobile County. It may be much more widespread, but it is easily overlooked on account of its small size, and it is probably visible only in spring.

ANACARDIACEAE (or SPONDIACEAE). Cashew (or Sumac) Family.

About 60 genera and 500 species, mostly tropical trees and shrubs.

RHUS, Linnaeus. *The Sumacs.*

About 125 species, trees and shrubs, in temperate and warm regions. Excluding some other genera that have been split off from it, Alabama has two, both native, but common in weedy places.

R. glabra L. White (or red) sumac. Grows naturally in dry but fairly rich soils, especially near rivers, which give it needed protection from fire. Very common along roadsides and in thickets, especially northward. Blooms mostly in May and June.

Darlington said of it in Pennsylvania in 1837 (206):—"Sterile old fields; fence-rows, & thickets: common. . . . This shrub is apt to be abundant in neglected old fields,—and its prevalence, in arable lands, is strong evidence of a poor thriftless farmer."

R. copallina (or *Copallinum*) L. Black (or red) sumac. Prefers dry or sandy soils, but not as sensitive to fire as the preceding. More abundant in a truly wild state, especially southward. Common along roadsides and in partly cleared woods, often with *R. glabra*. Blooms mostly in July and August.

TOXICODENDRON, Miller.

Formerly included in *Rhus*, but differs in its poisonous properties, and in various other ways. As now restricted this includes about 20 species, in North America and Asia. There are about three in Alabama, all native, but one often weedy.

T. radicans (L.) Kuntze. (*T. goniocharpum* Greene.) Poison ivy. Native throughout the state, except perhaps in the higher mountains. Grows usually in swamps, bottoms and rich woods, but it also flourishes on roadsides, etc., especially near its native haunts. But it is probably not as much of a roadside weed in Alabama as farther north, where it is a pest even in the outlying parts of New York City.

AQUIFOLIACEAE. Holly Family.

Three genera and about 300 species, trees and shrubs, widely distributed, but most numerous in Central and South America. A few are ornamental, and others medicinal.

ILEX, Linnaeus. *The Hollies*, etc.

About 150 species, mostly in warm-temperate regions. About a dozen in Alabama, all native, but the following sometimes weedy.

I. vomitoria Ait. (*I. Cassine* Walt., not L.) Yaupon. (Called cassena in South Carolina.) An evergreen shrub or small tree, native along the coast and scattered in the interior, at least as far up as the southern edge of Tuscaloosa County. Some of the inland localities, particularly in Autauga County, are in second-growth woods, and some in Coffee County are along roadsides. Away from the coast it is scattered so erratically as to suggest that it might have been planted by the Indians, who brewed a beverage from its leaves. The Tuscaloosa County locality is not far from Moundville, the site of a famous aboriginal settlement.

Mease in 1807 devoted nearly two pages (293-294) to its medicinal properties, and its use by the Indians and the inhabitants of the Carolinas. Nuttall said of it in 1818 (1:109):—"Used sometimes as a substitute for tea; also by the savages in their superstitious ceremonies." Elliott in 1824 (2:681-682) said:—"Grows in loose soils; very abundant near the ocean. A strong decoction of this plant is used by the tribes of the Creek Indians at the opening of their councils. They send annually to the sea-coast for a supply of the leaves."

For additional notes on its distribution and uses see our Monograph 9 (1928), pages 246-247.

AESCULACEAE. Horse-chestnut Family.

Two genera and about 25 species, in the North Temperate zone.

AESCULUS, Linnaeus. *The Buckeyes, etc.*

About twenty species, trees and shrubs, mostly in North America and Asia. One, *A. Hippocastanum*, the horse-chestnut, native of Asia Minor and vicinity, is commonly cultivated for shade and ornament in the North, but is seldom seen as far south as Alabama. There are also a few hybrids in cultivation. Alabama has about four species, all native, but one or two with weedy tendencies.

A. Pavia L., the red-flowered buckeye, grows in rich or dry woods, nearly throughout the state, and is probably commoner in Alabama than in any other state. It is also fairly common on roadsides, in thickets, etc., something like the sumacs, though much less of a weed than they are.

SAPINDACEAE. Soapberry Family.

About 125 genera and over 1,000 species, mostly trees and shrubs, and found in warm regions.

CARDIOSPERMUM, Linnaeus.

About 15 species, natives of warm regions. One in Alabama, presumably escaped from cultivation.

C. Halicacabum L. (Balloon vine.) Native of the tropics. Occasionally cultivated as a porch vine, mainly as an oddity, on account of its balloon-like pods, and running wild, but sometimes found remote from habitations, as if native. Elliott said of it in 1817 (1:460):—"This plant is occasionally seen in the gardens around Charleston, but has the appearance of an exotic." Nuttall in 1818 (1:257) did not indicate any habitat for it, but said:—"A doubtful native, but indigenous to India."

Twenty years later Torrey and Gray said of it (1:254):—"On the Missouri and its branches, . . . Texas, . . . Native. Cultivated occasionally, but hardly naturalized, in the Atlantic states." Chapman said of it in 1860 (79):—"South Florida, apparently native, and not uncommon in cultivation."

Dr. Mohr reported it as escaped in three counties, and I have seen it in one or two others, particularly on the banks of the Tombigbee River in October, 1908, in and near the post oak flatwoods, where it could easily have been taken for a native. In the summer of 1918 I noted it from the car window in a few places in the Brazos River bottoms in Brazoria County, Texas, rather remote from towns;⁴⁵ which affords some grounds for considering it native there. This is a problem that deserves further investigation.

RHAMNACEAE. Buckthorn Family.

About fifty genera and 600 species, mostly trees and shrubs, widely distributed. A few are ornamental, and others medicinal.

BERCHEMIA, Necker.

About ten species, most of them in tropical Asia and Africa. One in Alabama.

B. scandens (Hill) Trel. (*B. volubilis* (L.f.) DC.) Rattan vine. A twining woody vine, deciduous, but easily recognized by its stems twining to the left (sinistrorse), and covered with smooth dark green bark. Grows naturally on limestone outcrops and in alluvial bottoms, mostly in the Tennessee Valley and coastal plain. But it is also frequent on roadsides and in thickets in the same general regions.

RHAMNUS, Linnaeus. (*The Buckthorns.*)

About 90 species, mostly shrubs, in temperate and warm regions. Two native and occasionally weedy in Alabama.

R. Caroliniana Walt. Native in rich woods, especially on or near limestone, scattered from the Tennessee Valley to the coast. Also on roadsides in Tuscaloosa County and the black belt, and perhaps elsewhere.

R. lanceolata Walt. Native in dry calcareous soils, in the black belt and a little south of it. But it seems to grow in roadside thickets as often as in natural habitats. Some diverse statements about its habitat are found in the books, suggesting the possibility of more than one species being involved. For example, Pursh described it in 1814 from "On the side of hills: Ten-

⁴⁵See Bull. Torrey Bot. Club, 37:115, 120. 1910; 47:315. 1920.

nassee." Nuttall's only comment on it in 1818 (1:152) was "Plentiful around New Orleans." Chapman in 1860 (73) and 1897 (77) said of it:—"Hills and river-banks, in the upper districts, Alabama and northward." (He put it in a different genus from the preceding.) Small in 1933 (832) attributed it to "River-banks and moist hillsides."

VITACEAE. Grape Family.

About a dozen genera and over 500 species, nearly all woody vines, most of them in warm regions.

VITIS, Linnaeus. *The Grapes.*

Species not all well defined, but there are at least forty of them, woody vines, in temperate and warm regions. Some of them have been cultivated for centuries, and have developed many horticultural varieties. There are about six in Alabama, all or nearly all native. Most of them tend to stray to roadsides and thickets, when opportunity offers, but only two or three seem to deserve special mention in this connection.

V. candicans Engelm. Observed in two or three different years climbing trees on a dry roadside a little east of Montgomery. This species is not listed as growing east of the Mississippi River in Small's Manual, and I listed it as *V. cinerea* Engelm. in Monograph 9 (p. 262), but my specimens have been identified by Prof. L. H. Bailey, a recognized authority on the genus, and I have seen an abundance of it in eastern Texas. The *V. cinerea* reported by Mohr from Hale and Mobile Counties might be the same thing.

V. cordifolia Mx. A species of very little value for its fruit, but sometimes cultivated for ornament. Perhaps native in dry woods, in the northern half of the state, but seen oftenest in thickets and on roadsides.

V. rotundifolia Mx. Muscadine. (Sometimes called bullace in South Georgia.) A well-known edible species, with fruit ripe in late summer and fall. Grows naturally in various places protected from fire, such as rock outcrops, hammocks, swamps and dunes, practically throughout the state. But also common on roadsides and in thickets, like the sumacs.

The scuppernong is a cultivated variety, and both have been put in a different genus, *Muscadinia*, by Small.

AMPELOPSIS, Michaux. (*Cissus* of Persoon, not Linnaeus.)

About 25 species, woody vines, in temperate and tropical regions. Three in Alabama, all supposed to be native, but two are often weedy. They have no useful properties worth mentioning, except that they might be cultivated for porch vines, and they have apparently received no bona-fide common names.

A. arborea (L.) Rusby. (*Cissus stans* Pers., *Vitis bipinnata* (Mx.) T. & G.) Native in swamps and low calcareous woods, mostly in the coastal plain. Also a weed along roadsides and in thickets, especially near creeks, as far north as the Tennessee Valley.

A. cordata Mx. (*Cissus Ampelopsis* Pers.)

Perhaps native in alluvial and calcareous regions, but usually a roadside weed, especially near creeks and rivers. Scattered over the state, but not abundant. Without flowers or fruit it could easily be mistaken for *Vitis cordifolia*.

TILIACEAE. Linden Family.

About 35 genera and 350 species, widely distributed. This family as at present constituted contains some strange "bedfellows," very diverse as to fruits, as well as habit of growth. Our native species are all trees, of the genus *Tilia*, and our weedy ones are herbs, of the genus *Corchorus*.

CORCHORUS, Linnaeus.

About 40 species, mostly herbs, in the warmer parts of America and Asia. Some of the Asiatic species furnish the jute of commerce. Two have been incidentally introduced into Alabama, where they are not common enough to have common names.

C. Orinocensis HBK. This is probably what Dr. Mohr referred to as *C. hirtus glabellus*, in cultivated ground in Tuscaloosa and Mobile Counties. I saw it for the first time in the summer of 1943, one specimen near a former residence, now used for an office building, in down-town Tuscaloosa, and a few others in a flower-bed on the University campus.

C. aestuans L. (*C. acutangulus* Lam.?) Dr. Mohr knew this only from ballast near Mobile, where he found it in September, 1894. It has been growing near dwellings in Tallahassee, Fla., since 1910 at least, and should be looked for in southeastern Alabama. It is an annual, and makes its whole growth after the middle of the year, like some of the field weeds previously mentioned.

MALVACEAE. Mallow Family.

About 45 genera and 900 species, mostly herbs and shrubs, in temperate and tropical regions. Several species are ornamental, a few yield foods (such as the marshmallow and okra) or important fibers (such as cotton), and a considerable number are weeds.

ABUTILON, Miller.

About 100 species, mostly tropical. Several cultivated for ornament. One a weed in Alabama.

A. Theophrasti Medic. (*A. Avicennae* Caert.; *A. Abutilon* (L.) Rusby.) Native of India. Said by Mohr to grow "all over the state in cultivated grounds and on roadsides;" but I have seen it only once or twice, in the Tennessee Valley. It is commoner farther north, for example around New York City.

Elliott seemed to regard it as native in South Carolina, for he said of it in 1822 (2:162):—"Grows in the middle country of Carolina and Georgia, very luxuriantly in the river swamps near Granby, S. C. Flowers May-July." Darlington said of it in Pennsylvania in 1837 (398):—"Cultivated lots; roadsides, &c. frequent. . . . This foreigner is completely naturalized; and is becoming a troublesome weed in our cultivated grounds." Torrey and Gray in 1838 (1:200) did not indicate any localities for it, but said:—"Waste places and road-sides: introduced. July-Sept." Deam (666) found it in quite a variety of weedy habitats in Indiana.

MODIOLA, Moench. (No common name.)

Restricted by Small to one species, as follows.

M. Caroliniana (L.) Don. (*M. multifida* Moench.) Commonly regarded as native, perhaps on account of having been first described from "Carolina," but grows also in Latin America, and could have been introduced from there. At any rate, it is invariably a weed with us, growing mostly around dwellings, but apparently preferring sandy soils. It is pretty well distributed over the state, but commonest southward.

Elliott said of it in 1822 (2:163-164):—"Grows very common about buildings and in rich soils. Flowers April-June." Torrey and Gray in 1838 (1:229) said:—"In rich soils, along rivers, and in waste places; Virginia! to Florida! west to Red River, Louisiana! July-Sept." They also mentioned its close relationship to two South American species; which may be significant. Chapman said of it in 1860 (56) and 1897 (49):—"Waste places, Florida to North Carolina and westward."

SIDA, Linnaeus.

About 100 species, herbaceous or slightly woody, in warm regions. Seven species and a variety have been reported from Alabama, most of them weeds, and three of them only on ballast.

S. Elliottii T. & G., our largest-flowered species, may be native in sandy woods in the coastal plain, but it is not above suspicion, and I have seen it on roadsides as much as in natural habitats, if not more so. It is rather scarce.

S. spinosa L. is probably introduced from the tropics, but is commoner in northern than in southern Alabama. It grows principally in cultivated fields, and blooms in late summer.

Darlington said of it in Chester County, Pennsylvania, in 1837 (397):—"Road sides, and waste places: frequent. . . . Apparently an introduced plant,—which is gradually extending itself through the County." Chapman knew it only from "waste places."

S. rhombifolia L., another tropical species, is a very common roadside weed in the coastal plain, and has been seen a few times in the northern quarter of the state, where it has probably arrived more recently. Dr. Mohr did not know of it north of the central pine belt, and said of it, "never met with distant from dwellings," which is still true for the most part. And Chapman said of it in 1860 (55):—"Around dwellings." But Elliott in South Carolina 120 years ago (2:160) attributed it only to dry pastures.

Its leaves go to sleep at night, by folding up against the stem, exposing the pale lower surfaces. In mild climates, as near the Gulf coast, it behaves something like a shrub, and may put out new leaves from old stems in the spring. Even in Tuscaloosa the specimens seen in late fall are almost woody, and have much smaller leaves than the vigorous summer shoots. Its stems are very tough, and can be used in a pinch for tying things together.

Neal in 1890 applied the name "tea weed" to several species of this genus in Florida, and I heard the same name applied to *S. rhombifolia* in South Georgia about a dozen years later. Neal said of these plants, among other things (15):—"Rating weeds in order of badness, . . . Tea weeds are fourth, with roots apparently clinched on the other side of the world."

S. acuta Burm. (or *S. carpinifolia* L.f., treated as a synonym by some authors and as a variety by others), also tropical, is said by Mohr to grow near the coast, especially on ballast. I do not recall seeing it in Alabama, but it is just about the commonest species of the genus in Florida, even as far north as Tallahassee, and it would not be surprising to find it in south-eastern Alabama.

MALVA, Linnaeus. *The Mallows.*

About thirty species, herbs, natives of the Old World. Two reported from Alabama, but one only on ballast.

M. rotundifolia L. A European weed, found near dwellings. Said by Mohr to grow "over the state," but I remember seeing it only in the Tennessee Valley, and very little of it there. It is common in New England, where the fruits, known as "cheeses," are eaten by children; or at least were fifty or sixty years ago.

Elliott said of this in 1822 (2:163):—"An exotic becoming naturalized in our country. Grows about buildings. Flowers May to July." Darlington in 1837 (395):—"Yards, gardens, and grass-lots: common. . . . This foreigner is extensively naturalized; and somewhat troublesome about gardens." Chapman in 1860 (53) said of it:—"Around dwellings. Introduced."

STERCULIACEAE. Chocolate Family.

About 50 genera and 750 species, mostly tropical trees and shrubs. Several of them are cultivated for ornament in mild climates. One of these, *Firmiana simplex* (formerly known as *Sterculia platanifolia*), the Chinese varnish tree, is frequent in some of our coastal plain cities, particularly Montgomery, and occasionally escapes. Both the cola nut and the cocoa bean (or cacao, not to be confused with coca), the basis of widely used beverages, come from tropical trees of this family. Its wild representatives in the United States are all introduced weeds, mostly herbs, chiefly confined to the warmer parts of the country.

MELOCHIA, Linnaeus. (No common name?)

About 25 species, mostly in tropical America. One introduced in Alabama.

M. corchorifolia L. (*Riedleia corchorifolia* (L.) DC., formerly confused with *M. hirsuta* Cav.) Native of Latin America. Found by Dr. Mohr on ballast and in cultivated ground near Mobile, first in 1874 or 1875. (See Mohr, 1901, pp. 55, 619.) Said by him to have become a pernicious weed, very injurious to the hay crop. Chapman in 1883 (610) and 1897 (54) knew it only from Savannah and East Florida. I have seen it in Florida but not in Alabama.

HYPERICACEAE. St. John's-wort Family.

Sometimes included in the Guttiferae, a family largely represented by woody plants in tropical Asia. But Hypericaceae proper comprises ten genera and something over 300 species, mostly herbs and small shrubs, in temperate and tropical regions.

HYPERICUM, Linnaeus. (The St. John's-words.)

About 200 species, herbs and shrubs, widely distributed. About 18 in Alabama, all supposed to be native, but a few often weedy.

H. maculatum Walt. An herb, about knee-high, probably native in dry woods northward, but found also in old fields. Commoner in the northern states.

H. mutilum L. Grows in wet places, often in ditches along roads and railroads, and seldom if ever in perfectly natural habitats. Commonest northward.

SAROTHRA, Linnaeus.

Only two species, in eastern North America, both in Alabama. Combined with *Hypericum* by ultra-conservative botanists, but appears sufficiently distinct, on account of the smaller leaves and flowers.

S. Drummondii Grev. & Hook. The larger of the two species, growing in moderately rich soil, fields and roadsides, scattered over the state, but not common. Alleged to be native, and it might be farther west, but it is always a weed in Alabama. It was not known at all in Elliott's time, but Torrey and Gray in 1838 (1:165) had specimens from as far east as Milledgeville, Georgia, and Chapman in 1860 (42) knew of it in South Carolina.

S. gentianoides L. (*Hypericum Sarothra*, Mx.) (Poverty weed.) Possibly native on rock outcrops, but nearly always a weed, in worn-out fields, on sandy roadsides, etc., widely distributed over the state. Elliott in 1817 (1:371) attributed it to damp soils, strange to say. Darlington said of it in Chester County, Pennsylvania, in 1837 (284):—"Gravelly old fields; roadsides: frequent."

CISTACEAE. Rock-rose Family.

About nine genera and 160 species, mostly in the northern hemisphere.

CROCANTHEMUM, Spach.

Formerly included in *Helianthemum*, which seems to be mainly a European genus. About 25 species, American. Four are credited to Alabama, all supposed to be native, but at least one is a weed.

C. rosmarinifolium (Pursh) Barnhart. Said to range westward to Texas, and it may be native there, but it is certainly not in Alabama. It grows on sandy roadsides in a few places in the black belt, but is commoner in Southeast Georgia, where the writer and A. H. Curtiss collected it in 1901, and the latter said of it:—"In eastern Georgia covering hundreds of acres of old fields as densely as a sowed crop."⁴⁴

LECHEA, Kalm. (*The Pinweeds*.)

The number of species is rather indefinite, because they are not well understood, but there are probably a dozen or two, all North American.

⁴⁴See Bull. Torrey Bot. Club. 30:337-338. June, 1903.

Eight species were reported from Alabama by Mohr, all supposed to be native. But some of them (not identified with certainty yet) are decidedly weedy, and found in sandy old fields oftener than in natural habitats.

VIOLACEAE. Violet Family.

About 15 genera and 400 species, nearly all herbs, widely distributed.

VIOLA, Linnaeus. *The Violets and Pansies.*

About 300 species, herbs, nearly all perennial, widely distributed but mostly in temperate regions. Several are cultivated for ornament, and a few are weedy. At least twenty species have been reported from Alabama, but some of them are difficult to distinguish, and an "expert" might find several more. (And a few perfectly distinct species have been added to the known flora of the state since Dr. Mohr's time.) Most of them are unquestionably native, but some have weedy tendencies, and one or two seem to be introduced.

V. Priceana Pollard. (Confederate violet.) A very distinct species, unless it is a mere "sport" or hybrid. Most of our blue violets have the limb of the corolla violet-colored and the center white, but this has a pale blue limb and a dark blue center. Described from Kentucky in 1903,⁴⁵ and now said to range from North Carolina to Arkansas, and assumed to be native. But in Georgia and Alabama I have seen it only in cities and towns (e.g., Birmingham, Talladega, Dadeville), where it is cultivated, and also escapes to roadsides and vacant lots. (The Arkansas station reported by Brainerd⁴⁶ is in the streets of Mena.) So its origin is at present a mystery.

V. Rafinesquii Greene. (*V. tenella* Muhl.) ("Johnny jump-up.") This little plant is common along roadsides, near dwellings, etc., in most parts of the state, especially the central portions (but I do not remember ever seeing it in Georgia). It is an annual, blooming in spring and disappearing in summer. Its flowers are usually pale blue, but in Cullman County they are sometimes white or nearly so.

It has had a curious history. Though apparently collected in eastern Virginia over 200 years ago, it was scarcely known to American botanists before the middle of the 19th century. But it is now said to range from New York to Michigan, Georgia and Texas. In the latter part of the 19th century it was commonly regarded as an introduced variety (*arvensis*) of the cultivated European pansy (*V. tricolor*). But it was described by Greene in 1899 as a distinct species, *V. Rafinesquii* (some earlier names used for it having proved

⁴⁵C. L. Pollard, Proc. Biol. Soc. Wash., 16:127. 1903.

⁴⁶Ezra Brainerd, Vt. Agric. Exp. Sta. Bull. 224:23. 1921.

untenable). That automatically made it a native, in the estimation of many botanists, notwithstanding the fact that it is always a weed.

About five years ago Fernald⁴⁷ showed that it is very close to *V. Kitaibeliana* R. & S., of southern Europe, and made it a variety of that, with the suggestion that it might have been introduced from northern Africa, and might be found there some time. But it might just as easily have been modified from *V. Kitaibeliana* after that was introduced into this country long ago, as seems to be the case with several other of our weeds that differ a little from the similar ones in Europe. This is an interesting problem for geneticists.

PASSIFLORACEAE. Passion-Flower Family.

About 18 genera and 400 species, mostly South American.

PASSIFLORA, Linnaeus. *The Passion-flowers.*

About 350 species, and several horticultural hybrids, herbaceous vines, mostly South American. Several cultivated for ornament. Two in Alabama, one a native with slight weedy tendencies, and one an alleged native that is always a weed.

P. incarnata L. Maypop. A common weed of fields, roadsides, etc., widely scattered over the state. Blooms in late spring and summer. It has large and handsome flowers of striking appearance, and fruit that can be eaten, and is also supposed to have some medicinal virtues.

Because it is confined to the United States, or nearly so, this has always been treated as a native. But E. P. Killip, in his recent monograph of the family,⁴⁸ pointed out that it is so closely related to the South American edible species, *P. edulis* Sims, that the two were confused by Linnaeus and other early writers. So perhaps it is not unreasonable to suppose that *P. edulis* was brought to North America for food by some aboriginal tribe centuries ago, and later ran wild and deteriorated a little, producing what we now call *P. incarnata*. There are some analogous cases in other genera of cultivated plants.

Elliott in 1822 (2:154) seemed to regard it as native, and gave its habitat as "dry so'ls." Torrey and Gray in 1840 (1:538) had the same idea. But Chapman in 1860 (147) said of it:—"In open or cultivated ground, common. June and July." Neal in 1890 (15) said:—"Rating weeds in order of badness, . . . Tea weeds are fourth, . . . then the Maypop, almost a rival of Nut grass."

⁴⁷Rhodora, 40:443-446. Nov. 1938.

⁴⁸Field Museum (Chicago), Bot. Series, 19:389-393. 1938.

CACTACEAE. Cactus Family.

About 100 genera and 1,200 species, mostly in the drier parts of North and South America.

OPUNTIA, Miller. *The Prickly-pears.*

This genus is variously subdivided, but is believed to contain over 200 species, all American. The number in Alabama is uncertain, because the distinctions between species are rather subtle, but we may have four or five. They grow mostly in dry rocky or sandy places, well protected from fire. One, not identified with certainty, has become a pest in pastures and other grass-lands in Autauga and Montgomery Counties.⁴⁹ *O. Ficus-Indica* (L.) Mill., cultivated principally for ornament, occasionally strays outside garden fences.

LYTHRACEAE. Loosestrife Family.

About twenty genera and 400 species, widely distributed, but most numerous in tropical America.

LAGERSTROEMIA, Linnaeus.

About 30 species, trees and shrubs, mostly in Asia and Australia. One introduced in the United States.

L. Indica L. Crepe Myrtle. A small tree, native of Asia, much branched from the base like a shrub, covered all summer with a profusion of flowers, which are normally pink-purple like those of the peach, but some varieties are darker red, or white. Widely cultivated for ornament in the southern two-thirds of the state, but the northern third is almost too cool for it. In some parts of Georgia it is called "ladies' streamer," evidently a corruption of the generic name.

It apparently produces an abundance of seed, which do not germinate in our climate. But the plant propagates by suckers from the root, and may persist for many years after the house near which it was planted disappears.⁵⁰

Chapman in 1860 (135), and even in 1897 (159), mentioned this only as a cultivated plant. Apparently the first report of its running wild in the United States is by Small, who found it near Stone Mountain, Georgia, in 1893.⁵¹

⁴⁹Deam (694) reports *O. humifusa* becoming an obnoxious weed in some parts of Indiana.

⁵⁰See Torrey, 31:3-4. 1931.

⁵¹Bull. Torrey Bot. Club, 21:18. 1894.

LYTHRUM, Linnaeus. (The Loosestrifes of northern books; but that name would be more appropriate for *Lysimachia*, in a different family, for it is essentially a literal translation of that generic name.)

About 30 species, widely distributed. Three native and one on ballast in Alabama, but one of the natives has weedy tendencies.

L. lanceolatum Ell. Grows naturally in damp calcareous soils, with little or no shade. Fairly common in and near ditches along roads and railroads in and near the black belt, and as far south as Washington County in the lime hills. Elliott when he described it, in 1821 (1:544-545), said of it:—"Grows in ditches, swamps, &c." (presumably near Charleston, S. C.)

PARSONSIA, P. Browne. (*Cuphea*, Jacq.)

About 200 species, in the warmer parts of America. One in Alabama.

P. petiolata (L.) Rusby. (*Cuphea viscosissima* Jacq.) Perhaps native in calcareous woods in the Tennessee Valley and black belt, but oftener a weed of pastures and roadsides, in the same regions. Not common. Blooms in late summer.

Nuttall said of this in 1818 (1:304):—"From Pennsylvania to Louisiana and on the banks of the Mississippi. (Abundant around Lancaster and now beginning to occur in the vicinity of Philadelphia in a few localities.)" Elliott in 1821 (1:546) had a different idea, namely, "Grows along the mountains." Leavenworth in 1824 described it as "*Silene axillaris*," a supposed new species, from Greene County, Alabama.⁵²

Darlington found it in Pennsylvania in 1837 (324) in "Sandy fields and roadsides: frequent." Torrey and Gray said of it in 1840 (1:483):—"Fields, Pennsylvania! to Georgia! and Arkansas! extending to Brazil. July-Sept." Chapman in 1860 (135) said:—"Upper districts of Georgia, and northward. August." (I have seen it in Georgia only in the Appalachian Valley, in the northwest.) Deam (698) found it mostly in weedy places in Indiana.

In spite of the doubtful nativity of this species, there is a native one, *P. lythroides* Small (*Cuphea aspera* Chapm.) in uninhabited pine woods near Apalachicola, Florida.

⁵²Am. Jour. Sci., 7:62. 1824.

MELASTOMACEAE.

About 175 genera and 3,000 species, mostly tropical. Several cultivated for ornament in warm climates, and in greenhouses.

RHEXIA, Linnaeus. (*Meadow-beauties* of northern books.)

About 15 species, in the eastern United States and West Indies. About eight in Alabama, all native, but two with weedy tendencies.

R. Mariana L., grows in sandy bogs, etc., but apparently as often along roads and railroads as in natural habitats. Pretty widely distributed over the state, but commonest southward.

R. Virginica L. has much the same habitat and distribution, but is less common.

ONAGRACEAE. Evening-primrose Family.

About 40 genera and 500 species, the great majority herbs, mostly in the temperate parts of North and South America. Several cultivated for ornament, the best known of which are the Fuchsias.

ISNARDIA, Linnaeus. (Formerly included in *Ludwigia*.)

About four species, North American. One in Alabama.

I. palustris L. Scattered over the state in wet and miry places, probably oftener in ditches than in undisturbed habitats.

LUDWIGIA, Linnaeus

About 25 species, mostly North American. Dr. Mohr reported seven species and a variety from Alabama, and one or two others have turned up since. They are all native, but a few have weedy tendencies.

L. alternifolia L. Grows in damp places of various kinds, scattered over the state, but most frequently in roadside ditches, etc., like the two *Rhexias* mentioned above. Some of the other species are not averse to growing in similar situations. Although this is now supposed to be common throughout the eastern United States, Elliott in 1817 (1:217) had seen it in only one place, a few miles from Beaufort, S. C., but had specimens also from Savannah.

L. microcarpa Mx. Grows naturally in damp marly places in the coastal plain. I had seen it in Georgia and Florida, but never in Alabama until

August 4, 1938, when I found a few specimens in damp soil along the railroad near Brompton, St. Clair County; a strange place for it.⁶³

JUSSIÆA, Linnaeus.

About 50 species, mostly in tropical America. Five species have been credited to Alabama, all more or less weedy, and found also in the tropics, and most of them have probably been accidentally introduced.

The commonest one is *J. decurrens* (Walt.) DC., which grows mostly in ditches like *Ludwigia alternifolia*, but is less common.

J. pilosa HBK. (*J. leptocarpa* Nutt.) is said by Mohr to be frequent in ditches, etc., from Autauga County to Mobile, but I have seen very little of it in Alabama.

The others are still scarcer, and hardly need to be mentioned here.

OENOTHERA, Linnaeus. (*Onagra*, Adanson.) *Evening Primroses*.

This genus, formerly a pretty large one, has been subdivided, and is now restricted by Small to about 15 species, mostly North American. Only one was credited to Alabama by Mohr (under *Onagra*), but another was overlooked by him. Both are alleged natives, but apparently always weedy.

O. biennis L., the common evening primrose, is a coarse weed several feet tall, blooming in summer and fall, on roadsides and in old fields, practically throughout the state. It flowers open after dark, perhaps not till early morning.

O. grandiflora Ait. has had an interesting history. The first formal description of it was by William Aiton, an English botanist, in 1789. He had it cultivated from seeds obtained in Alabama by William Bartram, through Dr. John Fothergill, Bartram's English patron. The specific name seems to have originated with Bartram, but he did not publish it until 1791, in his well-known "Travels." He found it near what is now the northwestern corner of Baldwin County, early in August, probably in 1776. The following account of it is somewhat abridged from his narrative:—

"Early one morning, passing along by some old uncultivated fields, a few miles above Taensa, I was struck with surprise at the appearance of a blooming plant, gilded with the richest golden yellow: stepping on shore, I discovered it to be a new species of the *Oenothera* (*Oenothera grandiflora*,), perhaps the most pompous and brilliant herbaceous plant yet known

⁶³I had seen *Anchistea Virginica*, a fern chiefly confined to the coastal plain, there from a train in June, 1910 (see Torrey, 10:222. Oct. 1910), but had had no opportunity to examine the spot more closely until I passed there in an automobile with Dr. H. K. Svenson of the Brooklyn Botanic Garden on the date above mentioned.

to exist. It is an annual or biennial rising erect seven or eight feet, branching on all sides from near the earth upwards, The flowers begin to open in the evening, are fully expanded during the night, and are in their beauty next morning, but close and wither before noon. There is a daily profuse succession for many weeks, and one single plant at the same instant presents to view many hundred flowers. I have measured these flowers above five inches in diameter, they have an agreeable scent."

In spite of this enthusiastic description, the plant seems to have received little attention for a long time afterward. Specimens referred to it, rightly or wrongly, were found in other states. Elliott, describing what he took to be the same species in 1817, but crediting it to Pursh instead of Aiton, said:—"Grows in gardens and around buildings. Certainly not indigenous in our low country." This presumably refers to the vicinity of Charleston, S. C. His description, as far as it goes, seems to fit our plant pretty well, and he did not confuse it with *O. biennis*, which he described on the preceding page.

Darlington, in his flora of Chester County, Pennsylvania, 1837, has a note on it under *O. biennis* (240), saying in part:—"The *OE. grandiflora*, Ait.—which is almost naturalized about our gardens—is a biennial, of stouter growth than this, with more ovate leaves, larger flowers, and the calyx more pubescent; but seems to be nearly allied to it,—and may, as Dr. Torrey suggests, be scarcely more than a variety." (But his reference to a pubescent calyx seems to indicate a plant somewhat different from ours.)

John Lindley, an English botanist, made it a variety of *O. biennis* in 1833, and by the middle of the 19th century it seems to have been regarded as synonymous with *O. biennis*, and it was so treated by Chapman in 1860, (but he ignored it completely in 1897). Small revived Lindley's variety in 1896,⁵⁴ with the observation that its range was about the same as that of the species, but it was more common in the Southeast. It was treated similarly in Britton & Brown's Illustrated Flora of the Northern United States in 1897. But it was not mentioned at all in Mohr's Plant Life of Alabama, 1901, not even in the introductory chapter, where more than two pages were devoted to a summary of Bartram's work in the state.

In the first decade of the present century the studies of mutation in *Oenothera* by Hugo DeVries, a Dutch botanist, attracted attention to this well-nigh forgotten plant, which it was thought might be the prototype of *O. Lamarckiana*, Prof. DeVries's favorite subject for experiment. Some of the botanists at the New York Botanical Garden asked Prof. S. M. Tracy, of Biloxi, Miss., to visit the original locality and look for it. He did so on Aug. 16, 1904, and shortly thereafter a postal card was received from him, saying "I have it. Tracy." (I was in New York at the time, and saw the card.) Miss Anna Murray Vail gave a preliminary account of it in *Torreya* (5:9-10) the following January, and raised *O. grandifolia* again to the rank of a species (calling it

⁵⁴Bull. Torrey Bot. Club, 23:171. 1896.

Onagra, as was the vogue at that time), having decided then that it was not the same as *O. Lamarckiana*.

Interest grew in the succeeding years, until in the summer of 1912 Prof. DeVries decided to visit Bartram's locality himself. He did so on Sept. 26, 1912, with Prof. Tracy as guide, and the writer was with them then for a short time.

Contrary to views held about the wide distribution of this species late in the 19th century, not many localities are definitely known for it. It may still grow in South Carolina or Georgia, where Elliott found it, but I have not identified it in either state; though it might easily be mistaken for *O. biennis* if seen say between 10 a.m. and 5 p.m. Small in his Manual, 1933, restricts it to the coastal plain of Alabama, and I have not recognized it except in Baldwin and Monroe and perhaps one or two other counties. This is rather surprising in view of the fact that it is just as much of a weed as *O. biennis*, and was recognized as such long ago by Bartram and Elliott. Bartram's original locality was near where there had been French plantations before his time, and it may have been introduced from some tropical source at present unknown.

Gates (1909) made some interesting comments on this species, which deserve further investigation. On the first page he mentioned a large-flowered evening primrose found in a back yard in St. Louis, which "is very probably a form or derivative of *O. grandiflora*. This plant is at present only known from two localities in Alabama, and the source from which this particular specimen reached its present location is quite unknown. But it is by no means unlikely that search by botanists and collectors will reveal its presence in various parts of the country. Probably the most likely location in which to look for *O. grandiflora* is in the States of the Middle South. I may say that cultures of some English *Oenotheras* growing wild near Liverpool, an account of which is as yet unpublished, show that various races of *O. grandiflora*, as well as *O. Lamarckiana* and its derivatives, occur in that locality."

At this writing (September, 1943) specimens of both *O. biennis* (or what is presumed to be that) and *O. grandiflora* are growing on the University campus (the latter descended from seeds brought from Bartram's locality a few years ago by Dr. S. J. Lloyd), thus affording a good opportunity for comparing them.

O. biennis may be biennial, as the name implies, but *O. grandiflora* blooms the first year from seed, though it may grow larger in subsequent years. Its flowers open rapidly just about sunset, and are about half as large again as those of *O. biennis*, and the whole plant is smoother, particularly the calyx tubes. Other differences may be discussed later, and made the subject of a special study.

RAIMANNIA, Rose. (More Evening primroses.)

This genus was formerly included in *Oenothera*, and from about 1896 to 1905 was regarded as typical *Oenothera*, while the species now referred to *Oenothera*

were called *Onagra*. It includes about twenty species, all American. Two species and a variety have been credited to Alabama, one native on the coast, the others weeds. But one or two others might be expected.

R. laciniata (Hill) Rose. (*Oenothera sinuata* L.) Alleged to be native, but known also in the West Indies and Mexico, and might have come from the tropics. A very common spring weed on roadsides, and in fields that have not been cultivated for a year or two, widely distributed over the state. Disappears in summer, like many other weeds (and some native plants).

This has a near relative, *R. humifusa*, once regarded as a mere variety, growing on dunes and beaches along the coast, from New Jersey to Louisiana, and also reported from Mexico and Central America. But if I am not mistaken it does not wither away and disappear in summer, as *R. laciniata* does.

KNEIFFIA, Spach.

About a dozen species have been described, all growing in the southeastern United States, and two or three ranging as far north as New York and Wisconsin. The species do not differ much from each other, though, and all I have seen could easily pass for one. This genus was formerly included in *Oenothera*, but is amply distinct. The flowers open all day instead of at night, and the pods are very different,⁸⁵ not to mention other differences.

Mohr reports two from Alabama, one supposed to range pretty well over the state, and the other only in the southwestern pine hills. They grow normally in dry open woods, but often invade fields that have been abandoned a few years.

Most of our species of *Kneiffia* were formerly referred to one species *Oenothera fruticosa*; and Chapman in 1860 (139) attributed that to no habitat but fields. Darlington said of *Oenothera fruticosa* in southeastern Pennsylvania in 1837 (241):—"Sterile hills; pastures; woodlands: frequent. . . . This plant is found in very different soils and localities, and seems to present some perplexing varieties."

PENIOPHYLLUM, Pennell

One species, formerly included in *Kneiffia*.

P. linifolium (Nutt.) Pennell. (*Oenothera linifolia* Nutt.) This was not listed by Elliott, or even by Mohr. I have seen it only in fields near Tusculumbia (May 14, 1934), where it is rather rare, and evidently a weed. It is said to grow on flat granite rocks in Georgia, and to range from there to Illinois and Texas, on dry rocky hills and prairies.

⁸⁵See Plant World, 8:301-303. "Dec. 1905" (1906).

Torrey and Gray said of this in 1840 (1:499):—"Rocks and dry hills, Arkansas, . . . Western Louisiana." It may possibly have appeared east of the Mississippi River only since that time. Chapman in 1860 (139), and again in 1897 (162), gave its distribution as "Gravelly hills, near Scott's mill, Warren County, Georgia, and westward."

HARTMANNIA, Spach. "*Primrose*."

Formerly included in *Oenothera*. About ten species, American, mostly western. One introduced in Alabama. These plants are quite different from the true primroses, which belong to the primrose family (Primulaceae), but our species has been pretty generally called primrose in recent years, doubtless because it belongs to the evening primrose family, though it is not even an evening primrose itself, for its flowers open in the daytime.

H. speciosa (Nutt.) Small. (*Oenothera speciosa* Nutt.; *Xylopleurum speciosum* Raimann.) Very abundant, and showy when it blooms, in early summer, inconspicuous at other seasons, in fields, pastures and on roadsides in the black belt. And it has now spread nearly throughout the state, on dry soils that are moderately rich. In some localities it may have escaped from cultivation, but as a rule it seems to "hitch-hike" its way from place to place, like most other weeds.

There seems to be no satisfactory record of its first appearance in Alabama. Torrey and Gray in 1840 (1:499) knew it only from Arkansas (the part that is now Oklahoma) and Texas. It is not listed at all in Mohr's notes on weeds in the Alabama cotton production report, 1884, or in the last edition of Chapman's *Flora of the Southern United States*, 1897. But in 1900⁵⁶ I recorded its occurrence in Morgan and Sumter Counties, Georgia, as a comparative rarity, and it must have made a pretty broad trail across Alabama before that, on its way eastward. It has never been as abundant in Georgia as in Alabama, though, and I found no trace of it in the Altamaha Grit region forty years ago. When Dr. Mohr wrote of it in 1901 he knew it only in the black belt and Mobile County.

Its pods seem to open only in wet weather, like those of *Kneiffia*, but quite unlike those of *Oenothera*; a fact apparently not recorded in any of our botanical manuals yet.

LAVAUXIA, Spach. (No common name.)

Another small genus formerly included in *Oenothera*, but very distinct. Comprises about six species, American. One in Alabama.

It's flowers open at night, like the evening primroses.

⁵⁶See Bull. Torrey Bot. Club, 27:338, 431. 1900.

L. triloba (Nutt.) Spach. (*Oenothera triloba* Nutt.) Not listed by Mohr, and known to me at present only from a gravelly field and adjacent roadsides about four miles north of Russellville, Franklin County. But an old lady who lived about a mile from there thought she remembered seeing it as long ago as 1877. It is supposed to be native in Kentucky, Tennessee, and many states west of the Mississippi River, and might have come from some of those. Dr. Chapman did not know it in the southeastern states in 1860, but in 1883 and 1897 reported it from Nashville, Tenn., without indication of habitat.

GAURA, Linnaeus. (No common name.)

About 18 species, North American. Two are well-known natives in Alabama, another was reported by Mohr without definite locality, and two others, not listed by him, seem to be comparatively recent introductions from the West.

G. angustifolia Mx. Native in dry more or less calcareous soils, especially in the central prairies, and also a weed along roads and railroads in the same general regions, mainly in the coastal plain. Blooms in summer.

G. Michauxii Spach (*G. filipes* Spach) seems to be less common in Alabama. It is probably native in dry open woods northward, and is also found occasionally on roadsides and in old fields.

G. sinuata Nutt. Not listed in Small's Manual, but I have been seeing it in vacant lots, etc., in and around Tuscaloosa for more than thirty years. Presumably introduced from somewhere farther west. Blooms mostly in May.

This was known to Torrey and Gray in 1840 (1:518) from Arkansas (now Oklahoma) and Texas. Small in 1903 (848) gave its range as Kansas to Arkansas, Texas and Mexico.

G. parviflora Dougl. Widely distributed in the western states. Grows in and near railroad yards in Bessemer, Montgomery, and perhaps other cities. I first noticed it in Montgomery June 9, 1924. Our plant has been described by Weatherby⁵⁷ as a variety, *lachnocarpa*, with its type from Austin, Texas.

HALORAGIDACEAE (or GUNNERACEAE.) Water-milfoil
Family.

Eight genera and about 100 species, mostly aquatic, widely distributed.

⁵⁷Rhodora, 27:14-15. 1925.

MYRIOPHYLLUM, Linnaeus. (*Water-milfoils*.)

About twenty species, aquatic perennial herbs, widely distributed. Two reported from Alabama by Mohr, both native, but another has been introduced since.

M. proserpinacoides Gill., native of South America, is often cultivated in ornamental pools, and called parrot's feather, or water-feather. Although it seldom if ever blooms in this country, it sometimes escapes to ditches and other places where it is not wanted, like the water-hyacinth, and it may become a pest, like that species. I noted it from a train, just north of Brewton, July 23, 1911, and recently in Tarrant Spring Creek, about ten miles northeast of Birmingham. Mr. T. F. Hall reports that he has found it in several tributaries of the Tennessee River since that was dammed, but not in the main stream.

One of the native species, not positively identified for lack of flowers, has been somewhat of a nuisance in the city waterworks spring in Athens, on account of its rapid growth.⁸⁸

CORNACEAE. Dogwood Family.

About a dozen genera and 90 species, mostly in the Northern Hemisphere.

CORNUS, Linnaeus. *The dogwoods, cornels, etc.*

Formerly regarded as comprising about forty species, but it has been split up by Small, who put our common dogwood in Rafinesque's genus *Cynoxylon*, and the several shrubby species in *Svida*, Opiz. There are about three of the shrubby species native in Alabama. One of them, probably *C. asperifolia* Mx., which seems to prefer limestone regions, is fairly common on dry chalky roadsides in the black belt.

UMBELLIFERAE (also called **AMMIACEAE**, and **APIACEAE**)
Carrot or Parsley Family.

About 250 genera and 2,000 species, nearly all herbs, mostly in temperate regions. Includes several important food plants, a few poisonous ones, and many weeds. Coulter and Rose's monograph of this family, cited in the bibliography, contains valuable data on some of our weeds.

⁸⁸See Geol. Surv. Ala., Spec. Rep. 17 (Tennessee Valley), p. 29. 1942.

DAUCUS, Linnaeus. *The Carrots, etc.*

About 60 species, widely distributed. Two in Alabama, both weeds.

D. Carota L. Queen Anne's Lace. (The cultivated carrot is a variety of this, improved by cultivation.) Native of Europe and Asia; a common weed in the United States. Although fifty years ago there seemed to be no record of the occurrence of this in Alabama at all, and at present it is chiefly confined to the northeastern quarter of the state, Elliott knew it near the coast of South Carolina and Georgia a century and a quarter ago. He said of it in 1817 (1:349):—"This valuable and well known vegetable, a native of the dry plains of Europe, is becoming completely naturalized in this country. I have found it growing in the pine barrens of Effingham and Screven counties, Georgia; and Dr. Macbride informs me he has seen it in similar situations in St. Johns. Flowers April-May." Darlington said of it in Chester County, Pennsylvania, in 1837 (198):—"The wild variety is extensively naturalized amongst us; and is becoming quite a nuisance on our farms, where the proprietors are careless and slovenly."

Torrey and Gray said of it in 1840 (1:635):—"Fields, road-sides, &c.; naturalized throughout the United States. July-Sept." But this was an exaggeration. L. H. Dewey's map in the 1896 Yearbook of the U. S. Department of Agriculture (page 280) shows its range in this country as all considerably northeast of Alabama. Dr. Mohr in 1901 knew it only as a rare ballast plant near Mobile. But it is now extremely abundant on road-sides in the eastern half of the Tennessee Valley and in the northeastern third of the Coosa Valley, where it blooms mostly in June. It might have been there in Dr. Mohr's time and overlooked by him because he did not visit those parts of the state when it was in bloom; but there are some indications that it has continued to spread southwestward in recent years. It occurs sporadically in several places south and west of the area of its greatest abundance, as in Cullman and Franklin Counties, Jefferson County (extending for several miles along one of the highways a few miles northeast of Birmingham), and small patches in Tuscaloosa and Selma. In Virginia and farther north it is abundant in pastures and hay fields, becoming a pernicious weed.

It may be that the climate of southern Alabama does not agree with it very well. And yet a few decades ago it was found by Nash and Taylor in the mountains of Haiti.⁵⁹

D. pusillus Mx. A smaller and much less showy species than the preceding, alleged to be native, but invariably a weed in Alabama, and everywhere else where I have seen it, though there are some indications that it

⁵⁹See G. V. Nash, Jour. N. Y. Bot. Gard. 6:180. Nov. 1905; Norman Taylor, Torrey, 5:196-197. Nov. 1905. There it was supposed to be a relic from the French plantations of a century or so before.

For notes on its occurrence in Alabama see Torrey 32:145-146. Dec. 1932.

may be native in the far West. It grows chiefly on dry roadsides and in old fields, and is most abundant southward, where *D. Carota* is rare or absent. It blooms mostly in May.

This was first described in 1803 by Andre Michaux, who found it "in campestribus Carolinae," meaning in fields in Carolina (presumably South Carolina). Elliott in 1817 (1:349) said of it:—"Grows in dry soils. St. John's; . . . Savannah; . . ." Nuttall the following year (1:179) expressed the opinion that it was probably only a variety of *D. Carota*.

Torrey and Gray in 1840 (1:636) gave the range of typical *D. pusillus* as "Fields and prairies, South Carolina! to Louisiana and the southern part of Arkansas." They also described a variety from Oregon and another from California. Chapman said of it in 1860 (161):—"Dry sterile soil, Florida to South Carolina, and westward. June." I found it in Athens, Georgia, in the 90's, and assuming from Chapman's statement that it was chiefly confined to the coastal plain, I reported that as an extension of range in 1900.⁶⁰

Coulter and Rose, in their monograph of North American Umbelliferae, 1900 (see bibliography), did not recognize Torrey and Gray's two varieties even as synonyms. They cited specimens from South Carolina, Florida (near Jacksonville), and Mississippi, and several western states, including more from California than from any other state, one old one from Oregon, a few from Washington, and one from southern British Columbia. On page 372 of the same volume, V. K. Chesnut, in a report on plants used by the Indians of Mendocino County, California, published in 1902, said it was abundant on dry hillsides in that county, and used by the Indians as a talisman in gambling, and for no other purpose. That suggests that it had been there a long time, possibly since pre-historic times. C. V. Piper, in his flora of the state of Washington (Contr. U. S. Nat. Herb., vol. II, 1906), cited several localities for it, but said nothing about its habitat.

Dr. Mohr in 1901 (640) did not know of it farther north than Tuscaloosa County, but it may have pushed farther inland since that time, for I have seen it more than once in the Tennessee Valley in recent years. Livingston and Shreve, on page 88 of their monograph cited in the bibliography (1921) mapped its range as known to them, perhaps basing their data on Coulter and Rose. They indicated it as practically confined to the coastal plain as far as the eastern part of its range is concerned, but did not draw any important conclusion from that.

TORILIS, Adanson. (*Caucalis*, Linnaeus, in part.)

About twenty species, in the Northern Hemisphere. Two in Alabama, both weeds. They resemble *Daucus* in having barbed fruits, that readily attach themselves to wool or clothing brushing against them.

⁶⁰Bull. Torrey Bot. Club, 27:338. June, 1900.

T. nodosa (L.) Gaert. Native of Europe. Known to Dr. Mohr only as a "fugitive on ballast," in Mobile County in 1884. But I saw a little of it in the streets of Montgomery in 1927 (and near Milledgeville, Georgia, about two years later).

T. Japonicus (Houtt.) DC. (*T. Anthriscus* (L.) Bernh.) Another supposed European weed, known since the latter part of the 19th century in a few northern states, but not mentioned in Small's Manual, 1933. Only a few stations for it in the United States were known to Coulter and Rose in 1900; all north of the Ohio and Potomac Rivers, the oldest one cited being from Cincinnati in 1879. Deam's first record of it in Indiana goes back only to 1926.

I first noticed it along the railroad at Boaz, Marshall County, in June, 1937, and within a year or two near Birmingham, Tuscaloosa and Epes, and abundantly in Middle Tennessee. It grows mostly on roadsides, and blooms in May and June.

CHAEROPHYLLUM, Linnaeus. (*Chervil*.)

About forty species, in the Northern Hemisphere.

Two have been credited to Alabama, and there may be more, but the descriptions in the books are not very satisfactory, and I have never been certain of their identity. One is a common weed along roadsides and city streets, blooming in mid spring and soon disappearing. Another, apparently a little different, grows in more or less weedy prairies in the black belt, but might be considered native. What may be still another grows on rich shady but somewhat weedy bluffs on the Tennessee River just below Sheffield.

HYDROCOTYLE, Linnaeus. (*The Pennyworts*.)

About 75 species, widely distributed in wet or damp places. Four presumably native ones have been reported from Alabama, and there is another one introduced.

H. Bonariensis Lam. Native of South America. It grows in such habitats that it could easily be taken for a native here, but it was not known in Alabama in Dr. Mohr's time. Apparently the first report of its occurrence in the United States was by C. L. Pollard, who found it on the coast of Mississippi in 1896.⁶⁴ But Coulter and Rose in 1900 (27, 250) cited specimens scattered from North Carolina to Texas. The Texas specimens were older than those from farther east, one of them dating back to 1847; and Coulter and Rose had described them in 1890 as a supposed native variety, *Texana*. But in their Monograph of 1900 they made no distinction between this variety

⁶⁴Bull. Torrey Bot. Club, 24:155. March, 1897.

and the introduced South American species. Small in 1903 (858) gave its distribution as "In waste grounds and on ballast, North Carolina to Florida and Texas. Also in Central and South America."

I have seen it on sandy beaches and in still water, in several places around Mobile Bay, and also in many similar places in Florida.

One or two of our native species are not averse to growing on damp roadsides, in low pastures, and in other weedy places, and in fact may now be found oftener in such places than in undisturbed habitats.

SPERMOLEPIS, Rafinesque. (No common name.)

About four species, North American. Two or three in Alabama, probably native, and not differing much from each other.

The commonest one is probably *S. divaricatus* (Walt.) Britton. It grows normally in dry and rather bare sandy places in the coastal plain, but also strays to old fields, roadsides and railroads. Elliott in 1817 (1:356), using the name *Sison pusillum*, attributed it only to "dry, sandy pastures." On June 8, 1939, I found quite a luxuriant growth of it among cinders along the railroad about three miles east of Lineville, Clay County.

CICUTA, Linnaeus. (*The Water-hemlocks.*)

About eight species, in wet places in the North Temperate zone. One in Alabama.

C. Curtissii Coult. & Rose. (Formerly confused with the northern *C. maculata* L., from which it differs by rather inconspicuous characters; but the ranges of the two seem quite distinct.) Presumably native, but very characteristic of marshy places along railroad rights-of-way, where it could hardly have been 100 years ago. It is pretty widely distributed over the state, and blooms in summer.

TREPOCARPUS, Nuttall. (No common name.)

One species, as follows.

T. Aethusae Nutt. Chiefly confined to rich shady bottoms in the black belt, but found occasionally in neighboring regions, even in shale ravines near the Warrior River above Tuscaloosa. Presumably native, but grows also in weedy places, such as roadsides, in and near its natural range. At the time it was described, in 1829, it was known only from the Arkansas territory (which then included considerably more than the present state of Arkansas). Torrey and Gray in 1840 (1:634) knew it only from "Prairies of Arkansas, . . . Louisiana," Coulter and Rose in 1900 (86) cited specimens from Alabama (Mobile), Mississippi (Starkville), Arkansas, the Indian Territory and

Texas. Mohr in 1901 (102, 641) seems to have known it as a "fugitive on ballast" near Mobile before he found it in creek bottoms in Hale County.

PTILIMNIUM, Rafinesque. (*Discopleura*, DeCandolle.)

Said to comprise three species, all in the eastern United States; but if *Harperella* is included, as has been suggested, there would be three more, in the same general territory.

Dr. Mohr reported two from Alabama, but they do not seem to differ much. The commonest one, **P. capillaceum** (Mx.) Raf., grows in wet places of various kinds, and may be native in marshes near the coast, but is commoner in wet pastures, roadside ditches, etc., in most parts of the state.

CYCLOSPERMUM, Lagasca. (*Apium*, Linnaeus, in part.)

About six species, mostly natives of the Old World. One in Alabama.

C. Ammi (L.) Britton. (*Apium leptophyllum* (DC.) Muell.) A tropical weed, reported from several Latin-American countries. Found usually in roadside ditches, oftener in towns, and mostly in the coastal plain. Blooms in spring, and becomes inconspicuous or invisible in summer.

Nuttall in 1818 (1:191) called this *Aethusa leptophylla?*, and said of it:—"In the vicinity of New Orleans, from whence it was accidentally imported to Philadelphia, in a box of earth, with other plants." Torrey and Gray in 1840 (1:607) described it as *Helosciadium leptophyllum*, from "Alluvial soils, Louisiana, . . . Arkansas," with a broader-leaved variety from California.

BUPLEURUM, Linnaeus.

About 65 species, widely distributed. One is a rather rare weed in Alabama.

B. rotundifolium L. Native of Europe. Reported by Mohr from cultivated ground in Tuscaloosa County. I have seen it only along the railroad between Allison and Eutaw, Greene County, June 13, 1922.

PRIMULACEAE. Primrose Family.

About 30 genera and 700 species, most numerous in the Northern Hemisphere.

LYSIMACHIA, Linnaeus. (*Loosestrifes*; a name of European origin, apparently a mere literal translation of the generic name, which however is said to have been derived from that of an ancient king, Lysimachus.)

Species variously estimated at from 70 to 100, according to how the genus is subdivided. They are mostly in the Northern Hemisphere. Alabama has probably two native and one introduced species.

L. Nummularia L. (Moneywort.) Native of Europe; occasionally cultivated and escaped. It is quite common along the stream running down the north slope of Monte Sano from the Cold Spring, in rich shady woods, and any one seeing it there without knowing what it was could easily believe it to be native. It seems to propagate almost entirely by runners, and rarely blooms. It does not seem to have been known as a wild plant in the South until I reported it from Athens, Georgia, in 1900.⁶² It is commoner in the North.

CENTUNCULUS, Linnaeus.

Two or three species, widely distributed. One a weed in Alabama.

C. minimus L. A small spring-blooming annual. Originally described from Europe, and now known also from South America, Asia and Australia. It may have been in this country a long time, but as it is a small prostrate plant it is easily overlooked. Elliott in 1817 (1:203), calling it *C. lanceolatus*, said of it:—"Grows abundantly in the pastures at Vall' Ombrosa, Great Ogeechee. [In Georgia.] Flowers February-March." Nuttall said of it in 1818 (1:99):—"In depressed, and inundated situations on the margins of ponds, near Fort Mandan on the Missouri.—Abundant, 4 to 6 inches high; flowering in July." Chapman in 1860 (281) said:—"Low grounds near the coast, Florida to North Carolina, and westward. March and April." Dr. Mohr reported it from "Open, damp, sandy places," not infrequent near West Fowl River, Mobile County. I have never become acquainted with it. Elliott and Nuttall thought there might be two species in the United States, but modern authors make only one.

EBENACEAE. Ebony Family.

About six genera and 275 species, mostly tropical trees.

DIOSPYROS, Linnaeus. (*The Date-plums, etc.*)

About 160 species, mostly Asiatic. One common in the southeastern states, and an alleged distinct species in Florida. (The Texas persimmon is now put in a different genus.)

D. Virginiana L. Persimmon. Supposed to be native, and an occasional specimen on limestone slopes or in woods along streams may be, but some-

⁶²Bull. Torrey Bot. Club, 27:338-339. June, 1900.

thing like 99% of the specimens one sees in Alabama and other states are weeds, in old fields, pastures, thickets, along roadsides, etc. A great many of them are young, only shrubs in size (but they probably do not bloom at that stage, as the sassafras does), and consequently this species is treated as a shrub in some of the foregoing regional lists. It probably grows in every county. It blooms usually in April, and the fruit begins to ripen on some trees late in August, and on others it may hang on until Christmas.

Elliott said of it in 1824 (2:713):—"Grows in light rich soils. Flowers May;" but he did not commit himself as to its indigeneity. Chapman in 1860 (273) said:—"Woods and old fields, Florida to Mississippi, and northward." Gray in 1878 (2:69) observed that it is very close to an Asiatic species, *D. Lotus* L.; a fact that seems to have been overlooked by nearly all subsequent writers, and might throw some light on its history.

OLEACEAE. Olive Family.

About twenty genera and 525 species, trees and shrubs, widely distributed in temperate and tropical regions. Contains a considerable number of species useful for timber, ornament, food, etc. Four genera are native in Alabama, but none of those are weedy.

LIGUSTRUM, Linnaeus. *The Privets.*

About fifty species, natives of the Old World; also several horticultural varieties and hybrids. They are evergreen shrubs and small trees, and several of them are cultivated for ornament and hedges. A few species, particularly the smallest and least attractive one, *L. vulgare* L., commonly cultivated for hedges, escape a little around cities and towns.

L. C. Beck, over 100 years ago,⁶³ reported *L. vulgare* as apparently native on prairies near St. Louis, but he may have mistaken some native shrub for it, for it does not seem likely that the people of St. Louis would have had privet hedges in those early days, and the seeds already carried to wild places by birds. Darlington said of it in Pennsylvania in 1837 (2):—"Along fences, and road sides: frequent. . . . This shrub was introduced from England, by the early settlers of Chester County, and cultivated for hedges; but it did not answer the purpose well, and was soon neglected. It is now extensively naturalized." Gray said of it in 1878 (2:72):—"Ligustrum vulgare, the Privet, used for ornamental hedges, is also occasionally found wild in the vicinity of towns in the Eastern Atlantic States, and may claim to be a really naturalized plant." Deam said of it in Indiana in 1940 (1080):—"I have never seen this species as an escape and I believe when a rigid investigation is made it will be found as a relict from some habitation."

⁶³Am. Jour. Sci. 10:258. 1826.

LOGANIACEAE (or SPIGELIACEAE).

About 30 genera and 400 species, mostly in warm regions.

GELSEMIUM, Jussieu.

Two or three species, evergreen woody vines, in the United States and Asia. One native in Alabama.

G. sempervirens (L.) Ait. f. Yellow jessamine. Unquestionably native, and widely distributed in the southern three-quarters of the state, in various places pretty well protected from fire but not too damp or shady. Also inclined to become a roadside weed, particularly in the southeastern quarter of the state. Begins to bloom in February or even earlier near the coast, and in March farther north.

POLYPREMUM, Linnaeus. (No common name.)

One species, as follows.

P. procumbens L. A little weed with small white flowers, in late summer, spreading out pretty flat. Probably introduced from the tropics, though some books have treated it as if it was native. Grows mostly on roadsides and in old fields, especially in sandy soils in the coastal plain. Elliott said of it in 1816 (1:200):—"Grows in pastures, very common. Flowers May-September." Chapman in 1860 (182):—"Waste places, Florida to North Carolina. June-Sept." Gray in 1878 (2:109):—"Sandy soil, Penn. (adventive), Maryland to Texas. Mex., W. Ind.)"

BUDDLEIA, Linnaeus.

About 70 species, mostly tropical. Ours is put by Small in a smaller genus, *Adenoplea* Radlk..

B. Lindleyana Fort., and perhaps one or two others, ornamental shrubs, natives of Asia, occasionally run wild near dwellings, or persist after the house is abandoned or burned, something like the crepe myrtle.

APOCYNACEAE. Dogbane Family.

About 130 genus and 1,000 species, most numerous in tropical regions. The tropical species include many ornamental shrubs and vines, several poisonous plants, and a few edible fruits. The temperate species are mostly herbaceous, and quite a number of them are weeds.

VINCA, Linnaeus. (*The Periwinkles.*)

About a dozen species, mostly evergreen herbaceous vines, natives of the Old World. Two cultivated and escaped in the United States.

Two species, *V. minor* L. and *V. major* L., are frequently cultivated in old gardens, cemeteries, etc., the former prevailing in the North and the latter in the South, but both in Alabama; and they may persist for years without attention. In Lee County, Georgia, in the fall of 1930, I found a dense growth of the latter in a small cemetery that had apparently been abandoned for three-quarters of a century.⁶⁴ They have pretty blue flowers, but I have never seen a fruit on either one; and they seem to depend almost entirely on vegetative propagation.

APOCYNUM, Linnaeus. (*The Dogbanes.*)

About a dozen species, herbs, in the North Temperate zone. Most if not all of those in the United States, alleged to be native, are weeds. One in Alabama.

A. cannabinum L. An alleged native, but always weedy. Widely scattered over the state, along roads and railroads, but much less common here than in the North, where some botanists have attempted to divide it into several species. I have noted it especially along the M. & O. R.R. in the central long-leaf pine hills in Autauga County.

Elliott (who called it *A. pubescens*) said of it in 1817 (1:315-316):—"This is our most common species of Apocynum. Grows in pastures, fields, &c., but not very abundantly. Columbia, . . . Flowers May-June." Chapman in 1860 (358-359) was rather vague about its habitat, saying merely, "Dry or damp soil, Florida, and northward. July and Aug." Deam (763) found this and two varieties only in weedy habitats in Indiana.

ASCLEPIADACEAE. Milkweed Family.

About 220 genera and 2,000 species, widely distributed, mostly in warm regions. Includes several ornamental plants and weeds.

ACERATES, Elliott.

About eight species, North American. One in Alabama.

A. viridiflora (Raf.) Eaton. Apparently native in dry open woods, but also a weed in old fields. Not common in Alabama. I have noted it in Autauga and Henry Counties, if not elsewhere.

⁶⁴See Torrey, 31:4-6. Feb. 1931.

ASCLEPIAS, Linnaeus. *The Milkweeds.*

About 150 species, perennial herbs, mostly in North and South America and Africa. Ten or twelve in Alabama, all native, but a few with weedy tendencies. (*A. Syriaca* L., common in the northeastern states, seems to be always a weed.)

A. tuberosa L. (Including *A. decumbens* L.?) Butterfly weed (or pleurisy root). Differs from our other species in having alternate leaves, and juice not milky; and from most of them in having orange-colored flowers. Common in most parts of the state, normally in dry open woods, but seen as often in old fields and on roadsides as in natural habitats. Blooms all summer.

It has been suggested that there are two races of this in the eastern United States, one native and one introduced from more open country farther west, and that the two have met and hybridized in various degrees. This is a matter that deserves further study.

A. amplexicaulis J. E. Smith. (*A. obtusifolia* Mx.) Probably native in dry open woods, like the preceding, but found also on roadsides and in old fields, pretty widely scattered over the state, but nowhere abundant.

ASCLEPIODORA, A. Gray. (No common name.)

About six species, North American. One in Alabama.

A. viridis (Walt.) Gray. Native in dry prairies in the black belt, and also often a weed in old fields, pastures, etc., in the same region.

AMPELAMUS, Rafinesque. (*Enslenia*, Nuttall.) (No common name.)

Apparently only one species, as follows.

A. albidus (Nutt.) Raf. (*Enslenia albida* Nutt.; *Gonolobus laevis* Mx., in part.⁶⁵) A herbaceous vine, climbing over bushes on river banks, etc. This species was not known to Elliott, and was not mentioned by Chapman until the last edition of his Southern Flora, 1897. I first met with it on the banks of the Chattahoochee River a few miles from Atlanta, Georgia, in the summer of 1900. Dr. Mohr knew it only from Jackson County, but in 1908 I found it along the Tombigbee River in southwestern Alabama.⁶⁶ It was reported as a troublesome weed in fields in southern Iowa by Pammel as long ago as 1913, and recently in Indiana by Deam. But I never knew it as anything

⁶⁵For a discussion of its nomenclatorial history, and some errors that had been made in describing it, see Bull. Torrey Bot. Club, 66:611-613. Dec. 1939.

⁶⁶See Bull. Torrey Bot. Club, 37:115. 1910.

but a native river-bank plant until about 1936, when I found it growing on cultivated bushes on the University campus; and in 1938 I saw it in similar situations in Kentucky.

DICHONDRAACEAE. (Formerly included in Convolvulaceae.)

Comprises only the following genus.

DICHONDRA, Forster. (No well-established common name.)

Five species, mostly in warm regions. One in the southeastern United States.

D. Carolinensis Mx. (*D. repens* Forst.) Long considered native, but probably introduced from the tropics, for it ranges southward to the West Indies according to Small, and to Patagonia according to Mohr. Elliott in 1817 (1:338) apparently considered this native, but gave its habitat in very general terms, as follows:—"In most soils not inundated. Flowers March-May." Nuttall said of it in 1818 (1:173):—"This genus, apparently consisting of but a single species, exists from South Carolina to the West India Islands, and continuing to Peru extends as far as New Zealand in the southern hemisphere." Gray said of it in 1878 (2:208):—"Wet ground, Virginia to Texas, near the coast, and Arizona. (Trop. & S. Am., Asia, Oceanica, Australia, S. Africa.)" He also described another species, from southern Texas, Arizona, Mexico and South America.

It is a creeping plant with small rounded heart-shaped petioled evergreen leaves, and small greenish flowers on erect stalks partly hidden by the leaves. In early spring many of the leaves are likely to be infested with a rust (*Tranzschelia*), which makes them a little smaller and taller, but that disappears later in the season, and seems to do no particular harm.

It is a common weed from Tuscaloosa southward, mostly on lawns, but sometimes in damp shady places away from towns. It makes a good lawn "grass" if it can be induced to cover the whole lawn, for it is evergreen, and never needs to be mowed. But it probably would not stand much trampling.

CONVOLVULACEAE. Morning-glory Family.

About 45 genera and 1,000 species, most numerous in warm regions. Most of them are herbaceous twining vines, and many are cultivated for ornament. A few yield food or medicine, and several are weedy.

IPOMOEA, Linnaeus. *The Morning-glories, Bindweeds, etc.*

About 400 species, widely distributed, especially in tropical America.

This genus has been variously subdivided, but the principal divisions are *Ipomoea* proper and *Pharbitis*, with about 200 species each. However, the distinctions between these do not seem important, and they are here combined, to simplify matters. A convenient summary of our species is Homer D. House's monograph, "The North American species of *Ipomoea*," in the *Annals of the New York Academy of Sciences*, 18:181-263. May, 1908. (This will be referred to again under some of the species.)

Alabama has about ten species, some only in natural habitats, some native but often weedy, some alleged native but always weedy, and some escaped from cultivation; not to mention a few known only in cultivation, such as some of the morning-glories and the sweet potato (which blooms so rarely that most people probably do not associate it with the morning-glories). They bloom in summer and fall.

The arrangement of the species differs in different books, but our weedy ones will be discussed here in approximate order of weediness, beginning with the least weedy.

I. pandurata (L.) G.F.W. Meyer. Wild potato. Doubtless native in dry open woods, in most parts of the state, but common also in old fields and along roadsides and railroads. Blooms all summer.

I. lacunosa L. This has the smallest flowers of any of our species, about an inch long, and white. It is supposed to be native on river banks and in low grounds, but it is usually a weed in damp fields, where it is sometimes troublesome, according to Mohr. It is also found occasionally in waste places in towns and cities. Blooms in late summer.

I. Carolina (L.) Pursh. (*I. trichocarpa* Ell.; *I. commutata* R. & S.) An alleged native, but apparently usually a weed; which I have never identified. Elliott said of it in 1817 (1:258):—"Grows in dry cultivated lands, very common. Flowers July-October." Chapman in 1860 (342-343):—"Margins of swamps, and cultivated grounds, Florida to North Carolina, and westward. Aug.-Oct." Dr. Mohr reported it from thickets and cultivated grounds in the southern half of Alabama.

I. barbigera Sims. Alleged to be native, but I have seen it only as a weed. It is common especially in corn fields, blooming in late summer. It seems to have been unrecognized by most 19th century botanists, but Dr. Mohr called attention to it in 1897,⁸⁷ saying among other things:—"This has been strangely overlooked by our botanists. . . . [It] is one of the most injurious of the bindweeds infesting the gardens and fields in the lower belt of the Carolinian and in the Louisianian zone of Alabama and Mississippi." Dr. Small, later in the same year,⁸⁸ cited a specimen from Auburn. My specimens are from Tuscaloosa, and I have seen it in several other counties without making special note of it.

⁸⁷Bull. Torrey Bot. Club, 24:26. Jan. 1897. See also page 679 of his *Plant Life of Alabama*.

⁸⁸Bull. Torrey Bot. Club, 24:489. Nov. 1897.

I. hederacea Jacq. Sometimes regarded as native, but probably introduced from the tropics, as it ranges southward to Brazil and Australia. It has about the same distribution in Alabama as the preceding, and seems to differ from it only in having three-lobed instead of heart-shaped leaves; so one may be a mere variety of the other. Indeed, House, in his monograph previously cited, although he separated *I. barbiger*a and *I. hederacea* in his key (p. 198) chiefly on the basis of the former having entire leaves and the latter three-lobed, said of *I. barbiger*a in his description (p. 202), "Leaf-blades entire or deeply 3-lobed."

Elliott, in 1817 (1:259), like some of his successors, confused this with *I. Nil* (a quite distinct species which I have seen only in cultivation), and said of it:—"Grows in dry cultivated ground. Very common. Flowers July-October." Nuttall in 1818 (1:124) said:—" . . . and *I. Nil*, appear by some means to have been introduced,—probably by the aborigines, as they are never to be met with but in the vicinity of settlements." Chapman in 1860 (342), calling it *Pharbitis Nil*, said:—"Cultivated ground, Florida, and northward. July-Sept." Gray in 1878 (2:210) correctly distinguished *I. Nil*, and said of *I. hederacea*:—"Waste and cult. grounds, Penn. to Florida and Louisiana, barely naturalized northward, perhaps indigenous far southward. (Trop. Amer. and now widely dispersed.)" House in 1908 (op. cit., 203) gave its distribution as "Dry or sandy soil, fields and thickets, Virginia to Kansas, Texas, Florida and tropical America. Adventive northward to Connecticut, central New York, Ontario and Illinois." (But just how he arrived at the conclusion that it is introduced in the latitude of New York, and native farther south, is not evident.) Deam in 1940 (777) found it mostly in weedy places in Indiana, and extended its range north-eastward to Maine.

I. purpurea Roth. (Common morning-glory.) Commonly cultivated, with various color varieties, and also escaping to corn-fields, etc., mostly in the northern parts of the state. (I have noted it particularly in Colbert and Marion Counties.) Different color varieties are found even among the escaped plants.

Elliott in 1817 (1:252), calling it a *Convolvulus*, said of this species:—"Very common in gardens, and met with occasionally around enclosures. Appears to be an imported plant, not entirely naturalized. Flowers through the summer." Darlington in 1837 (132) said of it:—"Gardens, and lots: frequent. . . . This is an introduced plant; but is well known, and almost naturalized, about our gardens, and cultivated lots." Chapman in 1860 (342) called it *Pharbitis hispida*, and said:—"Around dwellings. Introduced. June-Sept." Gray said of it in 1878 (2:210):—"Cult. grounds, an escape from cultivation in the Atlantic states. Texas. . . . San Diego Co., California, . . . where it may be indigenous. (Mex., &c, and widely dispensed.)" Small in 1897⁹⁹ cited a specimen from Auburn, which he said was the first report of it between the Atlantic states and Texas. House in 1908 (199) gave its distribution as

⁹⁹Bull. Torrey Bot. Club, 24:489. Nov. 1897.

"Thickets and waste places throughout tropical America. Cultivated and a frequent escape northward to Ontario and Nova Scotia."

I. macrorhiza Mx. (*I. Jalapa* Pursh) is said by Mohr (680) to be frequently cultivated and rarely escaped in Mobile County, and apparently not indigenous. Elliott in 1817 (1:252-253) devoted about a page to a discussion of its habitat, identity, and properties. Chapman in 1860 (343) called it *I. Michauxii*, and said of it:—"Light sandy soil, Florida to South Carolina, along the coast. July-Sept."

Gray in 1878 (211) gave practically the same distribution as Chapman, but extended its range to Mexico, the West Indies, etc., and observed that it is apparently the same as the Mexican false Jalap, but seems to lack its purgative properties. House in 1908 (227, 229) kept it separate from *I. Jalapa*, and gave its distribution as "Light sandy soil, near the coast, South Carolina to Florida and northern Mexico." But in Small's Manual, 1933, it is treated as native, with no mention of its occurrence in Latin America. I have never identified it.

QUAMOCLIT, Moench. (Formerly included in *Ipomoea*, but distinct enough.)

About ten species, in warm regions. Two cultivated (for their bright red flowers, in late summer) and escaped in Alabama.

Q. coccinea (L.) Moench. This is not very common, either cultivated or escaped, but Dr. Mohr reported it from Cullman and Talladega Counties, and I have seen it in Tuscaloosa.

This is one of three species said by Nuttall (1:124, quoted above under *I. hederacea*) to be found only in the vicinity of settlements. Elliott said of it in 1817 (1:258):—"Rare along the sea coast, very common in the middle country, . . . preferring damp, rich soils; in the corn fields in St. Johns very common. Flowers through the summer." Chapman in 1860 (341):—"Cultivated ground, in the middle and upper districts, and northward." Gray in 1878 (2:209):—"River-banks, &c., Middle and S. Atlantic States (apparently introduced, but well naturalized), and New Mexico and Arizona, where it is probably indigenous. (Trop. Amer., &c.)"

Q. vulgaris Choisy (*Ipomoea Quamoclit* L.), the cypress vine, is more commonly cultivated, on account of its attractive feathery foliage, but less frequently escaped. A hybrid between the two species is occasionally seen in cultivation.

This species was not mentioned by Elliott. Chapman said of it in 1860 (341):—"Spontaneous near gardens." Gray in 1878 (2:209):—"Cult. and sparingly spontaneous in S. Atlantic States. (Trop. Amer., &c.)"

THYELLA, Rafinesque. (Formerly included in *Jacquemontia*, and still earlier in *Ipomoea*.)

About ten species, in the warmer parts of America. One in the eastern United States.

T. tamnifolia (L.) Raf. Probably introduced from tropical America. This is one of three species of this family said by Nuttall (1:124) to be found only in the vicinity of settlements. Elliott, who put it in *Convolvulus*, said of it in 1817 (1:256):—"Grows in cultivated high lands. Paris Island. Augusta, Georgia, Flowers August-October." Neal said of it in 1890 (13):—"It would certainly be a misfortune beyond measure, if the *Ipomoea tamnifolia* with its wiry vines should invade our gardens and groves." A common weed in fields, especially in the coastal plain, in late summer and fall, behaving much like some of the morning-glories. (This may be the morning-glory reported as troublesome to cotton farmers in the black belt sixty years ago, though it seems to prefer sandy rather than calcareous soils.)

CONVOLVULUS, Linnaeus. (Including *Strophocaulos* (G. Don) Small.)

Comprises 150 to 200 species, mostly in warm regions. Three or four in Alabama, one or two native and two introduced.

C. sepium L. (and perhaps one or two related species). Apparently native in dry open woods, but also somewhat weedy, much like *Ipomoea pandurata*.

C. arvensis L. (*Strophocaulos*, Small.) Native presumably of Europe, and now widely naturalized in the United States. It has evidently been in the North longer than in the South. It was not known to Elliott in South Carolina, but Darlington said of its occurrence in Chester County, Pennsylvania, in 1837 (131):—"Cultivated grounds; near Downingtown: rare. . . . This is an introduced plant; and happily, rare in the county. Collected by D. Townsend, Esq. in 1831. It has been found exceedingly pernicious in cultivated grounds, in Europe,—choking and destroying whole crops; and is, moreover, very difficult to subdue.

Gray in 1878 (2:216) gave its distribution as "Old fields, N. Atlantic States. (Sparingly nat. from Europe.)" And the 6th edition of Gray's Manual, edited by Watson and Coulter, and published in 1890, tells the same story. It was not mentioned by Chapman until 1897 (329), when he said of it simply "Waste ground. Introduced." Small said of it in 1903 (966) "In waste places and fields, commonly established in northeastern North America and sparingly so in the southeastern United States."

It was known to Dr. Mohr only as a ballast plant in Mobile County, spreading slowly. I have seen it in vacant lots in Decatur (and in Georgia only once or twice, along railroads). In many of the western states, however, it is regarded as one of the worst pests in cultivated fields. A news item from South Dakota a few years ago estimated the damage to farmers in that state from this species (there known as "creeping jenny,") in one year at over six million dollars. Gates in 1941 (55) regarded it as by far the worst weed in Kansas.

CUSCUTACEAE. Dodder Family.

One genus, as follows, parasitic leafless vines. Formerly included in Convolvulaceae.

CUSCUTA, Linnaeus. About 160 species, widely distributed in temperate and warm regions. Known as "dodder" in northern books, and "love vine" in the South. Perhaps a dozen in Alabama, some native and some weedy.

C. campestris Yuncker (*C. arvensis* of most books) grows on several kinds of native herbaceous plants, and also on various kinds of weeds in old fields, which makes it a weed itself in such places. It is pretty widely distributed over the state.

C. pentagona Engelm. (if identified correctly), supposed to be native, but known also in the West Indies and Mexico, is becoming a serious pest on Lespedeza and perhaps other leguminous plants cultivated for forage in the Tennessee Valley.

Dr. Mohr reported *C. suaveolens* Seringe, a Chilean species, found in a patch of alfalfa in Montgomery County in 1889, which was promptly stamped out at his suggestion, and not seen again.

HYDROPHYLLACEAE (or HYDROLEACEAE).

About 18 genera and 225 species, nearly all herbs, most numerous in western North America. Several are cultivated for ornament, and only a few are weeds.

NEMOPHILA, Nuttall.

About 18 species, North American. One in Alabama.

N. microcalyx (Nutt.) F. & M. Native in rich woods, in Tuscaloosa County if not elsewhere, but also a weed in shady places (as the generic name implies), for example on the University campus, and near Montgomery.

PHACELIA, Jussieu. (No common name?)

About 100 species, American. About five in Alabama, all native in woods and rocky places, but at least one has weedy tendencies. They bloom in middle or late spring.

P. dubia (L.) Small, a pretty little native spring flower, is occasionally found along railroads. I found it in considerable abundance on the railroad right-of-way between Milstead and Shorter, Macon County, April 5, 1919, and between Tuskegee and Chehaw in the same county, April 16, 1927.

NAMA, Linnaeus. (Also called *Hydrolea*, Linnaeus.)

About 45 species, usually in wet places, and mostly in warm regions. Three in Alabama, native but with weedy tendencies.

N. quadrivalve (Walt.) Kuntze. Perhaps native in swamps, but found also in roadside ditches in the black belt and southward. Not common in Alabama.

N. corymbosum (Macbride) Kuntze. Described by Elliott in 1817 (1:336) from pine-barren ponds in South Carolina. I have seen it in several places in Florida, where it is doubtless native, but in Alabama I have seen it mostly in pools and ditches on railroad rights-of-way, for example between Aliceville and Pickensville (Nov. 29, 1931), just north and south of Coosada, Elmore County (June 28, 1927) and just north of Kirkland, Escambia County (July 23, 1911). It is fairly easy to recognize from a train in summer on account of its brilliant blue flowers. But it escaped the attention of Dr. Mohr, who traveled the same railroad many times, on his way from Mobile to Cullman and back.

N. ovatum (Nutt.) Britton, is apparently oftener weedy than native, in Alabama at least. It may be native west of the Mississippi River, where it has been known longer than it has in the East. Gray said of it in 1878 (2:176):—"Margin of ponds, Arkansas, W. Louisiana, and Texas. (S. Amer.)" Chapman said of it in 1883 (640) "Central Alabama (*Prof. E. A. Smith*) and westward," and in 1897 (357):—"Central Georgia, and westward"; but did not indicate its habitat. Dr. Mohr in 1901 identified Dr. Smith's locality as Prattville, and added another 75 miles farther west, namely, Gallion. I have seen it in pools and ditches in Autauga County, and perhaps elsewhere in the coastal plain; also unquestionably native in shallow ponds in the lime-sink region of Georgia⁷⁰ and in the coast prairies of Louisiana.

POLEMONIACEAE.

About a dozen genera and 250 species, nearly all New World herbs. Several species in different genera are cultivated for ornament, but they do not seem to be of much use otherwise. And there are very few weeds among them.

PHLOX, Linnaeus. (Common name also *Phlox*.)

About fifty species, mostly perennial herbs, nearly all North American. Several are cultivated for ornament, and some have developed horticultural varieties. About a dozen are native in Alabama, and some of them stray occasionally into weedy places, such as roadsides. The following western species is sparingly introduced in Alabama.

P. Drummondii Hook. Differs from our native species in being annual. When Dr. Gray was writing about it in 1878 (2:134) it (with two varieties)

⁷⁰See Bull. Torrey Bot. Club, 30:340. 1903.

was known as a wild plant only in Texas, but was "everywhere familiar in gardens." In cultivation it has developed several color forms, something like the sweet pea and pansy. Chapman indeed had noted it as "common in gardens" in 1860 (339). In Small's southeastern floras (1903 and 1913), it was credited only to Texas, although A. S. Hitchcock had reported it in 1899 as escaped from cultivation in three counties of Florida.⁷¹ Three decades or so ago I used to see it wild in dry sandy waste places around Jacksonville, Fla., but in Tallahassee it seemed to exist only in cultivation, as if the winters there might be a little too cold for it to perpetuate itself spontaneously. Consequently I was rather surprised to see a good deal of it on the eastern outskirts of Union Springs on April 16, 1927, not very close to houses. I have not been there since to see if it has perpetuated itself.

GILIA, Ruiz & Pavon.

About 100 species, all American, and most of them confined to the semi-arid regions of the West. One in Alabama, as follows.

G. rubra (L.) Heller. (*G. coronopifolia* (Willd.) Pers.) Sometimes called Spanish larkspur, or standing cypress. Probably native in dry rocky or sandy places, where the vegetation does not give much shade; but rather scarce in Alabama. Also occasionally cultivated and escaped.

SOLANACEAE. Nightshade Family.

About 75 genera and 2,000 species, in tropical and temperate region.

NICANDRA, Adanson (*Physalodes*, Boehmer.)

One species, native of Peru.

N. Physalodes Pers. (Apple of Peru.) Elliott said of this in 1817 (1:277):—"Found occasionally on rich soils, around buildings. A native probably of Europe." Nuttall the next year (1:130) said:—"Not naturalized, found merely about the rejectments of gardens. Originally from Peru, and the only species of the genus." Chapman in 1860 (351) said of it:—"Waste and cultivated ground, introduced." And Gray in 1878 (2:237):—"Waste ground near dwellings and old gardens. (Peru, and now dispersed through warm regions.)"

Said by Mohr to occur in waste places in Winston and Clay Counties. Robert S. Walker, in his book on Lookout Mountain (1941) illustrates it as one of the wild flowers of the mountain, but does not specify whether he saw it in Tennessee, Georgia, or Alabama. I have never seen it, to know it.

⁷¹Transactions Kansas Acad., Sci. 16:141. 1899.

PHYSALIS, Linnaeus. *The Ground-cherries.*

About 80 species, mostly American. Some natives, some weeds, and some cultivated for ornament or fruit. Alabama has 15 or 20, some genuine natives and some more or less weedy, but none are very common. The distinctions between some of them are rather obscure, and I have not studied them enough to do them justice; but they are pretty fully treated in Mohr's *Plant Life of Alabama*. Most of the species described by Elliott in 1817 were regarded by him as weeds. The uncertainties in this genus were realized by Darlington in 1837 (139). He recognized only two species in Chester County, Pennsylvania, one of them frequenting roadsides, fields, fence-rows, etc., and the other known only from a single locality (habitat not specified). Of the first he said:—"This plant is so variable in its minor features, and yet all the varieties are essentially similar, that I am strongly inclined to agree . . . that one species may properly comprise all those which have heretofore been enumerated as . . . [naming six species]. . . . But they all probably require a more careful examination, and comparison, than they have yet received."

The principal weedy ones seem to be as follows:—

P. Virginiana L. (and others?). Sparsely scattered in dry woods; also in old fields.

P. angulata L. Probably introduced from the tropics. A weed in gardens, etc. Said by Mohr to be distributed over the state, and abundant southward, but I am not sure that I have seen it in Alabama at all.

A South American species was reported by Mohr to be "fugitive on ballast" in Mobile County, where it had held its own for a dozen years without spreading.

SOLANUM, Linnaeus. *The Nightshades, etc.*

Including a few small genera that are sometimes split off from it, this comprises about 1,200 species, most numerous in South America. It includes such important food plants as the Irish potato and egg-plant, severalamentals, and many weeds. Several of them are more or less poisonous. There are nine or ten species in Alabama, all weeds, and some of them known only on ballast.

S. nigrum L. (Common nightshade.) A cosmopolitan weed in waste places, mostly in cities and towns. Considered poisonous, and yet a form of it known as "wonder-berry" was recommended a few years ago as an edible fruit.

Nuttall in 1818 (1:128) said of this:—"S. *nigrum* is found apparently spontaneously in every part of the world, in North America it exists westward to the sources of the Missouri." Darlington in 1837 (136) treated our plant as an American variety of a European species, and said of it:—"About dwellings; and among rubbish: frequent. . . . This seems to be nearly allied to the S. *nigrum*, of Europe, and Dr. Torrey suspects it to have been introduced. I incline very much to the same opinion." The Indians of the Plains may have used it for food, and spread it in that way; for Chesnut, 1902 (387) reports the ripe berries being used for food by Indians in California.

S. *Carolinense* L. (horse-nettle, or "tread-saft") is typical of the many species of plants that are considered native because they are not known to grow outside of the United States, but are always weeds. Linnaeus when he described it in 1753 gave no indication of its habitat, but Elliott said of it in 1817 (1:282):—"Grows in cultivated grounds. Very common." Of its occurrence in Chester County, Pennsylvania, Darlington said in 1837 (138):—"This is a vile, pernicious weed; and extremely difficult to subdue, or eradicate. It is believed to have been introduced by the late Humphrey Marshall into his Botanic Garden at Marshallton,—whence it has spread around the neighborhood; and strongly illustrates the necessity of caution, in the introduction of mere botanical curiosities into good agricultural districts."

In Alabama it is common on roadsides, in fields, etc., practically throughout the state, and blooms all summer. Its flowers are pretty enough, but it is a coarse weed, armed with prickles which are annoying to barefooted children, whence one of its common names, "tread-saft." Nothing seems to eat it but the potato-bug.

A related species with larger leaves and bluer flowers, seen occasionally on roadsides in southeastern Alabama (e.g., in Henry County) and near-by Georgia and Florida, was described by Small in 1933 (1115, 1508) as *S. perplexum*.

S. Floridanum Shuttl., which differs from *S. Carolinense* chiefly in having leaves more deeply lobed, has a limited range, as far as known, in Middle Florida, but is a roadside weed there, and might turn up in Alabama some time.

S. rostratum Dunal (*Androcera rostrata* Rydb.), thought to be native west of the Mississippi River, turns up occasionally in waste places in Alabama and even farther east, but does not seem to maintain a foothold here very long in one place. Nuttall described it in 1818 (1:129-130) as *Androcera lobata*, from "Near the banks of the Missouri, in arid, denudated soils, from the confluence of the river Platte, to the [Rocky] mountains."

DATURA, Linnaeus.

About a dozen species, mostly in tropical America. A few of the larger-flowered ones are cultivated for ornament. Three or four have been credited to Alabama, all weeds.

D. Tatula L. Jimson weed. Common in barnyards and in other places where the soil has been fertilized by refuse of various kinds. Probably introduced from South America; now widely distributed over the state.

D. Stramonium L., which differs from the preceding chiefly in having green stems and white flowers,⁷² is commoner in the North than *D. Tatula* is, but in Alabama seems to be chiefly confined to the vicinity of Mobile. However, I noted it in Butler County on June 11, 1919.

Elliott in 1817 (1:296) said of *D. Stramonium*:—"Grows in cultivated grounds, very common." He devoted about a page to its medicinal properties, concluding with this paragraph:—"It is improper to encourage the growth of the *Stramonium* near the residence of a family, as children have often endangered their lives by eating the seed." Of *D. Tatula* he said on the next page:—"Grows with the *D. Stramonium* around Charleston."

Nuttall in 1818 (1:131) gave reasons for believing that *D. Stramonium* originated in the East Indies, and added:—"It is now naturalized throughout Europe." Gray said of it in 1878 (2:240):—"Nat. from Asia?" And of *D. Tatula*, "Nat. from trop. Amer."

Darlington made some interesting observations on these plants in 1937 (133), from which I have extracted the following:—"The true *D. Stramonium*, . . . is rather scarce in Chester County. . . . The var. *Tatula*, . . . is very common. It is usually of a larger growth than the other variety; but with the exception of size and color, I can perceive no material difference. This distinction, however, is very constant; and some respectable botanists persist in regarding them as two species. The *D. Stramonium* . . . is familiarly known here as an obnoxious weed,—and has been, from time immemorial; but it has every appearance of being an exotic."

Neal, in 1890 (7), thought these plants did not thrive as far south as Florida. He said:—"The *Datura* (Jimson) is dwarfed the first year, and rarely sees the third." Deam in 1940 (831-832) regarded the two species as one, and said it was formerly much more abundant in Indiana than at present, probably because its poisonous character is now more generally recognized, and farmers take more pains to destroy it.

⁷²See Wm. Tully, *Am. Jour. Sci.* 6:254-258. 1923; Harper, *Torreyia* 33:145. 1933.

BORAGINACEAE. Borage Family.

This has been subdivided by Small and others, but in the broader sense it comprises about 85 genera and 1,500 species, widely distributed in temperate and warm regions.

MYOSOTIS, Linnaeus. (*The Forget-me-nots, etc.*)

About 35 species, widely distributed. One or two in Alabama.

M. Virginica (L.) BSP. (*M. verna* Nutt.) Alleged to be native, but seems to be always a weed, on roadsides, in waste places, etc. Linnaeus described it in 1753 from "in Virginia ad vias" (meaning on roadsides). Blooms in spring and disappears in summer. Widely distributed over the state.

Dr. Mohr reported also a variety *macrosperma* (treated as a species by Small), but I have not identified it.

LITHOSPERMUM, Linnaeus. (*Gromwell* of English and northern books.)

Variously subdivided by different authors, but as interpreted by Small in 1933 includes about 30 species, in the Northern Hemisphere. Of these one is native and one a weed in Alabama.

L. arvense L. Originally described from Europe, and presumably introduced from there. Grows in vacant lots, waste places, etc., blooming in spring and disappearing in summer. Elliott said of it in 1817 (1:226):—"Grows on Charleston Neck, in dry soils. Not common. Imported." Darlington said of it in 1837 (118):—"Pastures, and grain fields: frequent. . . . An introduced, worthless plant."

Dr. Mohr reported it from the Tennessee Valley and Mobile County, and I have collected it in Tuscaloosa. It seems to be less common in Alabama than in Georgia.

HELIOTROPIMUM, Linnaeus. *The Heliotropes.*

Variously subdivided, but includes over 100 species, in the warmer parts of the world. Mohr reports two weedy ones from Alabama, and three others which are now referred to other genera.

H. Europaeum L. Reported by Mohr from waste places in the Tennessee Valley and on ballast near Mobile. I have not identified it.

H. Curassavicum L., a widespread tropical species, credited by Mohr to salt marshes in Mobile County, is usually more or less weedy where I have seen it in Florida, and probably in Alabama also.

H. Indicum L. (referred to *Heliophytum* in Chapman's Flora and to *Tiaridium* in Small's Manual), native of the tropics, is mainly a garden weed. Elliott in 1817 (1:224) seemed to regard this as native. He mentioned two particular localities for it, and then said:—"It is found generally along the borders of rivulets in the middle and upper country." Nuttall, the following year (1:112) said:—"Apparently native, in the warmer states." But Chapman in 1860 (330) and 1897 (360) knew it only from waste places; and Gray in 1878 (2:186) said of it:—"Waste grounds of the Southern Atlantic States, reaching to Illinois along the great rivers. (Nat. from India, &c.)" Dr. Mohr regarded it as common, but I have not seen much of it in Alabama.

COCHRANEA, Miers. (Formerly included in *Heliotropium*.)

C. anchusaefolia (Poir.) Gurcke. Native of South America. Grows in waste places, especially in and near cities and towns. It is a rather handsome little plant, originally cultivated for ornament. It must be a rather late introduction, for Gray said of it in 1878 (2:186):—"It is a native of Buenos Ayres and S. Brazil, is cultivated for ornament, and is becoming spontaneous in East Florida." Chapman first noted it in 1883 (639), saying:—"East Florida; Augusta, Georgia; Montgomery, Alabama. Introduced." Dr. Mohr reported it from Montgomery County, and it is fairly common in Tuscaloosa. Blooms mostly in early summer.

VERBENACEAE. Verbena Family.

About 70 genera and 1,000 species, widely distributed, mostly in warm regions. Many are cultivated for ornament, and several are weeds.

VERBENA, Linnaeus. *The Verbenas (Vervains in England).*

This genus has recently been divided into *Verbena* proper, with flowers in spikes, and *Glandularia*, with flowers in flat-topped clusters, besides one or two smaller genera. These distinctions seem logical enough, but the two groups may as well be kept together for the present, rather than burden readers with too many unfamiliar names. *Verbena* proper is said to contain about 75 species, and *Glandularia* about 25, nearly all American. (Most of the cultivated Verbenas seem to belong to the *Glandularia* section.) About a dozen species are known in Alabama, most of them weeds, and some only on ballast.

V. officinalis L., one of the few European species, is said by Mohr to be "a common wayside weed," "throughout the state," but I have never identified it, in Alabama or elsewhere. Specimens are on record from near Collinsville and Attalla.

V. urticaefolia L. (and *V. scabra* Vahl, which was not distinguished by Mohr), probably native of tropical America, is widely scattered over the state, mostly around houses and gardens.

Darlington said of it in 1837 (373):—"Pastures, roadsides, and open woodlands: common. . . . Towards autumn this plant becomes covered with a glaucous pulverulent matter, resembling mould. It is regarded as a weed in our pastures."

V. angustifolia Mx. (*V. simplex* Lehm.) Supposed to be native, but usually a weed of roadsides, etc., mostly in calcareous regions. *V. Halei* Small, a more robust species of similar appearance and habitat, may occur in the black belt

V. bracteata Lag. & Rodr. (*V. bracteosa* Mx.) was described by Michaux in 1803 from Illinois and Tennessee, which were pretty wild in those days, and it is almost unanimously treated as native in our books; but I have never found it as anything but a weed. It ranges across the continent now, and may have been introduced from the West. One of Michaux's localities was "in urbe Nash-ville," and Mohr said of it, "Always near dwellings." It was not mentioned by Elliott or Nuttall. Chapman in 1860 (307) called it *V. canescens*?, and said of it:—"Streets of Apalachicola, Florida, and along the Central Railroad in the middle districts of Georgia. Aug." Gray in 1878 (2:336) said:—"Prairies and open waste grounds, Wisconsin to W. Florida, and west to Oregon, California, and Arizona." Chapman said of it in 1897 (369) "Waste ground, and along roads," without mentioning any localities. Its favorite habitat is dry roadsides, paths, school yards, etc., where other vegetation is kept sparse by passing pedestrians. It is pretty widely scattered over the state, but not very common.

Small reports a related species, *V. supina* L., from the Mediterranean region, on ballast at Mobile, but it does not appear under that name in Mohr's Plant Life of Alabama, and perhaps was not known in Alabama in his time.

V. Bonariensis L., a South American species, is a fairly common weed around Mobile and other southern seaports, and I have found it in recent years along railroads, etc., in and near Tuscaloosa and Birmingham, and at Nokomis, Escambia Co.

The first mention of the occurrence of this in the United States that I have found is by Gray in the 1886 edition of his Synoptical Flora (2:458). He said:—"Roadsides near Charleston, South Carolina. (Widely dispersed through warm countries; nat. from S. Am.)"

V. rigida Spreng. Native of Brazil. Escaped from cultivation in Mobile County, according to Mohr, and on dry chalky roadsides in the black belt.

V. bipinnatifida Nutt.

Occasional in chalky fields in the black belt. Greene and Dallas Counties. Specimens are on record from near Demopolis and Spring Hill. Probably introduced from the West.⁷³

⁷³This species is not listed in Small's Manual, 1933, but an account of it can be found in Miss Lily M. Perry's monograph of *Verbena* (Ann. Mo. Bot. Gard. 20:323-325. 1933).

V. tenuisecta Briq. (*V. erinoides* Lam.?) Native of South America. In the last forty years or so this has escaped from cultivation to roadsides over a wide area, particularly in southwestern Georgia and southeastern Alabama, I have seen it as far inland as Autauga County.

CLERODENDRUM, Linnaeus. (Also spelled *Clerodendron*.)

About 100 species, mostly in the Old World tropics. A few cultivated for ornament; one escaped in Alabama.

C. Bungei Moldenke. (*C. foetidum* Bunge.) A short-lived unbranched shrub, or woody-based herb, with large rounded leaves that smell much like those of Jimson weed, and flattish terminal clusters of pink flowers. Native of China. Occasionally cultivated, and escaping, or at least persisting without care, around dwellings and in vacant lots. I have seen a little of it quite recently in Tuscaloosa (where perhaps it can hardly be called escaped yet), and about the same time had a more definite report of its running wild in Montgomery. It does not seem to make seeds in our climate, and probably perpetuates itself by roots, like the crepe myrtle.

LANTANA, Linnaeus.

About 60 species, mostly tropical shrubs. One escaped in Alabama.

L. Camara L. Native of tropical America, cultivated for ornament in the coastal plain, and escaping to roadsides around Mobile (and much more in Florida). It is cultivated as far north as Tuscaloosa,⁷⁴ but even in Montgomery it is usually killed to the ground every winter.

CALLICARPA, Linnaeus.

About 35 species, mostly in the Old World tropics. One native and often weedy in Alabama.

C. Americana L. Called fox-berry in the Tennessee Valley, and French mulberry farther south. Undoubtedly native in dry and moderately rich woods, pretty well protected from fire, in most parts of the state. But also frequent in thickets, on roadsides, etc.

VITEX, Linnaeus.

About 60 species, trees and shrubs, mostly in warm regions. One cultivated and escaped in Alabama.

V. Agnus-Castus L. (Called chaste-tree in northern books, and usually "lavender" here, though it belongs to a different family from the true lavender.) Cultivated in old gardens, and occasionally escaped. Noted particularly at Manningham, Butler County, in 1919.

⁷⁴See Torrey, 41:166. (Nov.) 1941.

LABIATAE (also called **LAMIACEAE** and **NEPETACEAE**).
Mint Family.

About 160 genera and 3,000 species, herbs and small shrubs, widely distributed in temperate and tropical regions. Most of the species contain aromatic oils, used in perfumery and medicine, and sometimes in food products. Many are cultivated for ornament, and quite a number are weeds.

TEUCRIUM, Linnaeus. (*Germanders.*)

Over 100 species, in temperate and warm regions. Two or three in Alabama.

T. Canadense L.(?) (Perhaps more than one species). Supposed to be native, but found mostly on roadsides, in calcareous regions. One species grows near dwellings on Dauphin Island, but I have not examined it closely. It may be *T. Nashii* Kearney. Dr. Mohr reported a Cuban species from ballast in Mobile County.

ISANTHUS, Michaux. (*False pennyroyal.*)

One species, as follows.

I. brachiatus (L.) BSP. (*I. caeruleus* Mx.) A small herb with inconspicuous blue flowers, alleged to be native, but seems to grow mostly in pastures and other weedy places, in the Tennessee Valley.

NEPETA, Linnaeus.

About 150 species, natives of Europe and Asia. One cultivated and escaped in Alabama.

N. Cataria L. Catnip. Cultivated in old gardens in the northern part of the state, and occasionally escaping. Commoner in the northern states. Elliott said of it in 1821 (2:72):—"An exotic plant, naturalised in our country. Found around buildings and in dry soils. Not common in the low country of Carolina."

GLECOMA, Linnaeus. (Formerly included in *Nepeta*.)

About six species, natives of Europe and Asia. One in Alabama.

G. hederacea L. (*Nepeta Glechoma* Benth.) A creeping plant, with flowers few, and often hidden by the rounded scalloped leaves. Cultivated in rock gardens and borders, and escaping. In Tuscaloosa it is quite common, and maintains itself indefinitely without attention, and spreads a little, like the *Vincas* previously mentioned.

PRUNELLA, Linnaeus. (Formerly—and more correctly?—spelled *Brunelia*.)

About five species, in temperate regions. One in Alabama.

P. vulgaris L. Supposed to be native here, and in many other countries. It sometimes grows with native plants in woods, meadows, prairies, etc., but as a rule it is a weed, on roadsides, etc. Favorite habitats for it are little-used (especially damp) roads through woods, and damp shaded places near old houses (much like *Plantago major*, mentioned farther on).

Darlington said of it in 1837 (352):—"Woodlands; roadsides, &c. common. . . . This plant is very common here; but Mr. Nuttall thinks it is certainly introduced. . . . Although presenting some varieties, there is probably but the one species in the U. States."

In its long association with civilized man it has developed some variations. One is a form that grows on lawns, and is low enough to escape the blades of a lawn-mower.⁷⁵

LAMIUM, Linnaeus. (*The Dead-nettles*.)

About forty species, natives of the Old World, where they have developed many puzzling forms. But there is only one known in Alabama, and it seems to be quite constant.

L. amplexicaule L. A common weed of roadsides and gardens, rather attractive when it blooms, in spring, but regarded by some people as a pest in gardens. It is a winter annual, disappearing in summer. In the fall it produces inconspicuous closed flowers, which pollinate themselves without opening, and probably produce seed before spring.

Elliott said of it in South Carolina in 1821 (2:73):—"A plant probably imported; now everywhere in cultivated lands. Flowers February-April." Darlington in Pennsylvania in 1837 (357):—"Gardens, and cultivated lots: common. Fl. April-May. Fr. June. Abundantly naturalized; and rather a troublesome weed in gardens. The variety, with the corolla of the lower verticils minute, or abortive, may often be observed in flower in February and March."

⁷⁵See J. T. Rothrock, Contr. Bot. Lab. Univ. Pa., 1:64-65. 1892; American Botanist 13:21. 1907; H. A. Gleason, Torreya, 30:3. Feb. 1930.

LEONURUS, Linnaeus. (*Motherworts*.)

About ten species, natives of Europe and Asia. One or two introduced in Alabama.

L. Cardiaca L. is reported by Mohr to range over the state in waste places. It is fairly common in the North, but the few plants of this genus that I have seen in Alabama, Georgia and Florida seem to be referable to another species, *L. Sibiricus* L.

LEONOTIS, R. Brown.

About a dozen species, natives of Africa. One in Alabama.

L. nepetaefolia (L.) R. Br. ("Devil's pincushion.") A tall stiffly erect weed with bright orange flowers (frequented by humming-birds), growing in round spiny balls around the upper part of the stem; the spines being the stiff sharp calyx teeth. (It would be difficult if not impossible for a crawling insect or other animal to climb past one of these balls to the next one above.) Grows mostly in sandy soil near barns, in the southern half of the state. Frequent but not abundant. Blooms in summer.

Chapman knew this as long ago as 1860 (326) from "Waste grounds, Georgia and Florida," but it was regarded as rather rare, and worthy of special note, until the end of the 19th century. In 1897 Pollard⁷⁶ reported it as a common weed on the coast of Mississippi, and Small⁷⁷ cited a specimen collected at Auburn, Ala. I found it near Americus, Georgia, about the same time, and so reported it in 1900.⁷⁸ Dr. Mohr knew it only in the "coast plain," which is about the same as the coast strip of the present work. I have seen it in Autauga County, and probably still farther north.

SALVIA, Linnaeus. *The Sages*.

About 500 species, widely distributed, especially in dry warm regions, such as Mexico. Six or eight in Alabama, some native and some weeds.

S. azurea Lam. Native in dry open woods, either calcareous or sandy, and also frequent on roadsides in the same general regions. Blooms in late summer. The flowers are usually blue (whence the specific name), but often pure white.

S. lyrata L. Native in low woods, especially if calcareous, but also common on lawns, in pastures, thickets, etc., in most parts of the state, something like *Prunella*. Blooms in spring.

Dr. Mohr reported an additional species as escaped from cultivation and another on ballast.

⁷⁶Bull. Torrey Bot. Club, 24:156. March, 1897.

⁷⁷Same, 24:333. July, 1897.

⁷⁸Same, 27:434. Aug., 1900.

MONARDA, Linnaeus.

About twenty species, North American. Five or six in Alabama, mostly native.

M. punctata L. (horse-mint), with yellow flowers, is probably native in dry sandy soils in the southern half of the state, but grows also in old fields and on roadsides.

M. citriodora Cerv. (Called *M. dispersa* Small in Small's Floras, with no explanation of the change. Perhaps supposed to differ from the original *M. citriodora*.) This might be native in Texas or Mexico, but it is always a weed in Alabama. It is very common in calcareous pastures, etc., in and near the black belt. It has blue flowers, and large colonies of it are very showy when in bloom, in summer.

HEDEOMA, Linnaeus.

About 15 species, mostly American. About three in Alabama, all weeds.

H. pulegioides (L.) Pers. Pennyroyal. Alleged to be native, but always a weed. Grows on roadsides, in old fields, pastures, etc., scattered over the state, mostly northward. Apparently less common now than formerly; and I sometimes do not see it for several years. An old resident of Tuscaloosa County told me several years ago that it used to be common on roadsides, fifty years or so ago, where the bitterweed (discussed farther on) abounds now. But I do not recall ever seeing it in Tuscaloosa County at all.

H. hispida Pursh. Differs from other species of the genus that I am acquainted with in being odorless, or essentially so. Perhaps native west of the Mississippi River. Nuttall described it in 1818 (1:16-17) as *H. hirta*, from "On the open alluvions of the Missouri." Apparently a recent introduction eastward, for it is not mentioned in Mohr's Plant Life of Alabama, or even in Small's Manual, 1933. I have seen it since 1935 along railroads in Tuscaloosa County and in old fields or pastures in Tuscaloosa, Sumter and Clarke Counties.

H. Drummondii Benth. Probably native in Texas. Found in May, 1935, in chalk barrens a few miles south of Demopolis. It had the appearance of being native there, but if it was it should be found in other places in the black belt. However, this seems to be the first record of it from east of the Mississippi River.

CLINOPODIUM, Linnaeus. (Also called *Calamintha*, and *Satureja*.)

This genus is variously classified, but as defined by Small in 1933 it comprises about 60 species, in the North Temperate zone. Three are reported from Alabama, two native and one a weed.

C. Nepeta (L.) Kuntze. Native of Europe. Fairly common on roadsides, etc., in the northern half of the state. Prefers dry calcareous soils, but has long had a slight foothold on the University campus.

MENTHA, Linnaeus. *The Mints*.

About 30 species, in the North Temperate zone. Three reported from Alabama, all European weeds.

M. piperita L. or *M. spicata* L., or both, the peppermints, grow in wet places near dwellings, where they may have persisted from earlier cultivated patches. They seem to maintain themselves indefinitely with little or no attention, and they could easily be taken for natives. Dr. Mohr reported another species, originally treated as a variety of *M. spicata*, from Mobile County.

LYCOPUS, Linnaeus.

About 15 species, in the North Temperate zone. Two or more occur in Alabama, but they are not easy to identify, because the differences are comparatively small, and the descriptions in the books are not very satisfactory. They are presumably native, but grow commonly in miry places, ditches, etc., like *Ludwigia alternifolia*, *Bidens frondosa*, and several other species listed herein. Two of the four species described by Elliott in 1816 (1:25-27) were attributed to ditches.

MARRUBIUM, Linnaeus.

About forty species, natives of the Old World. One introduced in Alabama.

M. vulgare L. Hoarhound. Native of Europe. This is fairly common around old farm-houses in New England, where it may have been originally cultivated for medicinal purposes. Elliott in 1821 (2:76) said of it in South Carolina:—"This plant though originally a foreign one, is now naturalized. It grows very common about buildings in dry soils. Flowers during the greater part of the summer." Darlington in 1837 (361) said of it in Chester County, Pennsylvania:—"Stony banks; about houses, &c., frequent. . . . This foreigner is naturalized in many places; but does not seem to extend itself very fast." Mohr in 1901 reported it as frequent in open waste grounds near dwellings in Alabama, and it is inserted here on the strength of that. I have few if any records of it in the state, but think I have seen it once or twice around old house-sites in the Tennessee Valley. It probably maintains itself a long time without spreading, like some other species already mentioned. Deam, however, found it escaping a little in Indiana.

PERILLA, Linnaeus.

Two species, natives of Asia. One in Alabama.

P. frutescens (L.) Britton. (*P. ocymoides* L.) Perhaps originally cultivated for its foliage, which is often dark purple or bronze-colored (but usually green). Now scattered over the state as a roadside weed; abundant in some places near farm-houses.

SCROPHULARIACEAE. Figwort Family.

About 200 genera and 3,000 species, mostly herbs, widely distributed over the world. Quite a number of species are cultivated for ornament, but otherwise the family is not remarkable for economic properties. A few, especially *Digitalis*, are medicinal. And the family furnishes a fair share of weeds.

The most complete account of our species is Francis W. Pennell's "The Scrophulariaceae of eastern temperate North America," which constitutes Monograph 1 of the Academy of Natural Sciences of Philadelphia, with xiv+650 pages and numerous figures and distribution maps in the text, published in November, 1935. It will be referred to again under some of the particular species in the next few pages.

PAULOWNIA, Siebold & Zuccarini.

Eight species, Asiatic trees. One cultivated and escaped in the eastern United States.

P. tomentosa (Thunb.) Baill. (*P. imperialis* S. & Z.) (Sometimes called "cottonwood" in Georgia, perhaps on account of the resemblance of the pods to cotton bolls.) Native of Japan. Cultivated for ornament, and escaping around several of our cities. An interesting feature of it is the rapid growth of shoots from stumps. They can often be found reaching a height of ten feet in one season, and instances of a growth of over 19 feet in a year have been recorded in North Carolina.⁷⁹

⁷⁹B. W. Wells, Science II. 54:13-14. July 1, 1921; W. F. Prouty, same, 170. Aug. 26, 1921.

PAGESIA, Rafinesque. (No common name.)

About 20 species, in the warmer parts of America (referred by different authors to *Herpestis*, *Monniera*, *Bacopa*, *Mecardonia*, etc.) One referable to this genus in Alabama.

P. acuminata (Walt.) Pennell. (*Herpestis nigrescens* Benth.) Native in "poorly drained" prairies and prairie-like spots, in various parts of the state, and also grows in old fields, pastures, etc., especially if a little damp. Pennell cites specimens of the typical form from Cullman, Etowah, Clay, Lee, Elmore, Autauga, Washington, Mobile and Baldwin Counties, and of a variety *microphylla* from Mobile.

VERBASCUM, Linnaeus. *The Mulleins.*

About 250 species, natives of the Old World. Two in Alabama.

V. Thapsus L. (Common) mullein. Scattered over the state, especially northward. It grows in various weedy habitats, but is probably most characteristic of rocky pastures. Elliott said of it in 1817 (1:274):—"Grows in dry pastures; introduced into this country in all probability at an early period of its settlement, now universally diffused." Nuttall in 1818 (1:133) said of both this species and the next:—"Introduced. Now naturalized." Darlington said of it in Pennsylvania in 1837 (134):—"Prof. Eaton seems to scout the idea of this being an introduced plant; but from all that I can learn of it, I am of the opinion it is not a native. It is a worthless intruder on our cultivated grounds; and generally abundant in the fields of slovenly farmers."

V. Blattaria L. (Moth mullein.) Fairly common on roadsides, along railroads, etc. Blooms in summer. The flowers may be either yellow or white, but the yellow form is commonest.⁸⁰ One form generally predominates in one locality, and they are seldom seen together. (This is analogous to the state of affairs in *Argemone*, mentioned on pages 107-108.)

Darlington said of it in 1837 (135):—"Corolla greenish white with a tinge of purple (sometimes bright yellow). . . . The variety with yellow flowers, though very common near Philadelphia, is comparatively rare in Chester County. It is on the increase, however, and will doubtless soon become common. This species, also, is believed to be introduced."

LINARIA, Miller. (Called *Toad-flax*, in England and the northern states.)

About 120 species, mostly in Europe and Asia. Three in Alabama, mostly weeds.

⁸⁰See Pennell, op. cit., p. 172.

L. vulgaris Mill. (*L. Linaria* (L.) Karst.) (Yellow toad-flax, or butter-and-eggs.) A European species, very common in the northern states,⁸¹ along railroads,⁸² etc., but rare in Alabama. Dr. Mohr reported it from Lauderdale and Tuscaloosa Counties, and thought it might have escaped from cultivation. I found it once near a country church on Sand Mountain, in DeKalb County, in 1933. It blooms all summer.

L. Canadensis L. (Blue toad-flax.) Alleged to be native, but apparently always a weed. *L. Texana* Scheele, a form separated by obscure characters of flower size and seeds, was separated by Pennell as a variety in 1921, and accorded specific rank by him in 1935 (op. cit., 302-310). Both are supposed to occur in Alabama and other southern states, and are probably equally weedy, but I have never distinguished them. The statements about *L. Canadensis* in the older books from which I am quoting may apply to either or both. A related but sufficiently distinct species, *L. Floridana* Chapm. is apparently native in dry sand in the coastal plain, in Alabama known only near the coast, but in Florida and Georgia ranging farther inland.

Elliott said of *L. Canadensis* in 1822 (2:113):—"Grows very common in almost all soils. Flowers March-April." Chapman in 1860 (290):—"Cultivated ground, common. April and May." Gray in 1878 (2:250):—"Sandy or gravelly soils, Canada to Texas, California, and Oregon. (S. Amer. &c.)"

Treating it as one species, it is very common in fields that have not been cultivated for a year or so, especially if the soil is sandy. It is sometimes so abundant as to appear from a distance like a thin blue carpet, in the spring, but it dies down and disappears in summer. It is very often associated with *Rumex hastatulus*, which blooms at the same time, but otherwise has no relationship or similarity to it.⁸³

⁸¹Pennell (op. cit., 301) quotes an 18th century observation of John Bartram on how this species, originally cultivated for ornament, had become a pest in pastures in Pennsylvania; but it is so scarce in Alabama that that is hardly worth repeating here. Darlington said of it in Pennsylvania in 1837 (368):—"Fence-rows; pastures, &c. common. . . . This foreigner is extensively naturalized,—and though rather showy, is an obnoxious weed in our pastures."

⁸²It is one of the commonest weeds recognizable from a train in southern Ontario in fall. (See Torrey, 27:5-6. 1927. Most of the other weeds listed—in parentheses—on those two pages are common also in Alabama.)

⁸³A similar observation was made by C. A. Weatherby in South Carolina a few years ago.

VERONICA, Linnaeus. (*Speedwells* of English and northern books.)

This genus has been variously subdivided, but is said to contain about 200 species, widely distributed. Five have been credited to Alabama, all of them weeds, and two only on ballast.

V. serpyllifolia L., supposed to be native of Europe, was reported by Mohr from some apparently natural places in calcareous woods in Madison and Jackson Counties. But I do not remember ever seeing it, in Alabama or elsewhere. Darlington said of it in Pennsylvania in 1837 (3):—"Supposed to be introduced; if so, it is completely naturalized."

V. peregrina L. Commonly considered native, but grows also in Mexico and South America, according to Mohr, and might have come from some of those countries. Nuttall in 1818 (1:6) expressed the opinion that this and all other species of *Veronica* in America, with one possible exception, occurred also in Europe and Asia.

Elliott said of it in 1816 (1:10):—"Grows in cultivated grounds, very abundantly. Flowers February-March." Beck in 1826⁸⁴ reported it from "On the banks of creeks, near St. Louis—common." Darlington said of it in Pennsylvania in 1837 (5):—"Gardens, and other cultivated grounds: common. . . This species, which probably has also been introduced, . . ." It is an insignificant-looking little weed, characteristic of damp fields and other weedy places, blooming in spring and disappearing in summer. It is distributed practically throughout the state.

V. arvensis L. Native of Europe. A neat little plant, with blue flowers, which would be quite ornamental if it was ten times as large. Grows on lawns, in pastures, etc., and is fairly common in most parts of the state, but easily overlooked on account of its small size. Blooms in spring and disappears in summer, like the preceding.

LEUCOSPORA, Nuttall. (No common name.)

Only one species, as follows. (From 1846 to 1933 this was put by most botanists in the tropical genus *Conoclea*, Aublet.)

L. multifida (Mx.) Nutt. An inconspicuous little annual, blooming in summer and fall. First described in 1803, as *Capraria multifida*, by the elder Michaux, who found it on sandy banks of rivers and creeks in Tennessee and Illinois. Nuttall said of it in 1818 (2:41):—"Along the banks of the Ohio and the other western rivers; common." Chapman did not record it from the South until 1883 (636), when he said:—"Valley of the Coosa River, Georgia, and westward."

⁸⁴Am. Jour. Sci. 10:258. 1826.

I found it on the banks of the Tombigbee River in Sumter County in the fall of 1908, where it may have been native, but was associated with many weeds.⁸⁵ Elsewhere in Alabama it is known only as a weed. Dr. Mohr knew it only as a ballast plant in Mobile County, and on June 13, 1922, I found it abundant (and in bloom) along the railroad between Allison and Eutaw, Greene County (the same place as *Bupleurum*, mentioned on a preceding page.) Pennell (op. cit., 106) cites a specimen from Gadsden, without indication of habitat.

AGALINIS, Rafinesque. (Called *Gerardia* by most 19th century botanists, but the type of that seems to belong to another family. See Small's Manual.)

About fifty species, American. All herbs, with pink-purple flowers in late summer, rather attractive. A dozen or more in Alabama, all presumed native, mostly in open woods. But one is decidedly weedy.

A. fasciculata (Ell.) Raf. Unlike the others, this seems to be especially partial to old fields. I have seen it oftenest in southeastern Alabama and southwestern Georgia, but have collected it as far inland as Autauga County. But it is not certain that our old field plant is the same as Elliott's, which he said "Grows principally in lands subject to occasional inundation from the ocean" (in southern South Carolina). However, that corresponds pretty well with the habitat given by Mohr, and the old field plant may be a variety.

For some additional notes on this species, and a map of its known range, see Pennell, op. cit., 441-444. 1935. He says of it among other things, "almost the only *Gerardia* of cultivated soil."

ACANTHACEAE. *Acanthus* Family.

About 175 genera and 2,000 species, in temperate and tropical regions. Contains many ornamental plants, but few others of economic importance.

RUELLIA, Linnaeus. (No common name.)

About 200 species, mostly tropical American. The present classification of the United States species is rather unsatisfactory, but there seem to be about half a dozen in Alabama. All are native, but one has weedy tendencies. The descriptions in current manuals are so ambiguous that I have never identified it with certainty, but it may be called provisionally *R. parviflora* (Nees) Britton.

It is common in dry woods in most parts of the state, but also grows in thickets, fields, gardens, etc. On flat limestone rocks it is usually decumbent, almost prostrate, with stems less than a foot long. The common

⁸⁵Bull. Torrey Bot. Club, 37:119, 121. 1910.

dry woods form is usually erect and less than a foot tall; but I have seen it in a garden near Florence, where it was partly supported by bushes, about three feet tall and widely branched. It blooms from about May to August.

DIANTHERA, Linnaeus.

This genus is also in an unsettled state. In Dr. Mohr's time it was supposed to include 100 species, mostly tropical American, but in Small's Manual all the southeastern species but the following were put in *Justicia*. Mohr reported two species and a variety from Alabama, all native.

D. Americana L. An unquestioned native, very characteristic of rocky shoals in creeks and rivers, mostly in the northern half of the state. But in recent years it has tended to multiply in the Tennessee River backwaters, and interfere with mosquito control there.⁸⁴

BIGNONIACEAE. Trumpet-creeper Family.

About 100 genera and 600 species, mostly tropical trees, shrubs and vines. Several are cultivated for ornament in the warmer parts of the United States.

TECOMA, Jussieu.

This genus has been variously classified and named. In some comparatively recent books it is called *Campsis*, and in Small's Manual it is made the type of *Bignonia*, a name long used for our well-known native cross-vine. But the name *Tecoma*, which was used in nearly all 19th century books, and in Mohr's Plant Life of Alabama, will be retained here, to avoid confusion "when doctors disagree." As interpreted in Mohr's time it included 23 species, mostly tropical. But *Bignonia* as interpreted by Small is said to include only two species, the following and one in Japan.

T. radicans (L.) Juss. Called "trumpet-creeper" in northern books, and "cow-itch" in Georgia if not in Alabama, on the mistaken notion that it is poisonous. A woody vine, climbing trees, stumps, walls, etc., by means of rootlets all along the stem. Its flowers are large and showy, produced all summer, and it is sometimes cultivated for ornament for that reason. It is undoubtedly native in alluvial bottoms and other damp rich woods, but probably at the present time most of the specimens in Alabama are weeds, in old fields, on tall stumps of dead trees that have been girdled, along roadsides, and even on buildings in towns. It is pretty widely distributed in the state, but commonest southward.

⁸⁴See Penfound (1940) in bibliography.

CATALPA, Scopoli. *The Catalpas.*

About ten species, mostly in Asia and eastern North America. One apparently native in Alabama.

C. bignonioides Walt. (*C. Catalpa* (L.) Karst.) (The common name, catalpa, which was used for the specific name by Linnaeus and for the generic name by Scopoli, is probably a modification of Catawba, an Indian name.)

A medium-sized tree, probably native on banks of rivers and creeks in most regions in the state, but most of the specimens one sees are in rather weedy places, especially where rivers and creeks are bordered by fields. Some also are in old fields, where they could hardly be native, and may have escaped from cultivation. The Indians may have cultivated it to use the worms that feed on its leaves for fish-bait, and it is now cultivated occasionally for shade and ornament. (For additional details see Monograph 9. Also Bull. Torrey Bot. Club, 27:434. 1900.)

Elliott said of this in 1816 (1:24-25):—"Grows in the middle and upper country of Carolina and Georgia, along the margin of rivers." Nuttall in 1818 (1:10) offered the following observations:—"C. cordifolia, (said also to be a native of Japan.) Rarely to be met with decidedly indigenous in the United States, and appears to have been introduced by the *aborigines*; hence its name of "*Catawba*," derived from a tribe of Indians residing on the Catawba river. In most of the *habitats* of this tree given by the younger Michaux . . . which I have visited, if existing at all, it had evidently been introduced." H. B. Croom said of it in 1835:—"Catalpa cordifolia. On the Conechee [Conecuh River], about the 31st degree of latitude, native? See Ellicott's Notes."

MARTYNIACEAE. Unicorn-plant Family.

Formerly included in Pedaliaceae, the Sesame family, but as now restricted it includes about three genera and a dozen species, mostly tropical.

MARTYNIA, Linnaeus. (*Proboscidea*, Moench).

Species variously estimated at 6 to 12, mostly South American. One in Alabama.

M. Louisiana Mill. (*M. proboscidea* Glox.) (Unicorn plant.) Long regarded as native, but known also in Mexico, and may have come from there. It is sparsely scattered as a roadside weed, especially near barns, in the coastal plain. Dr. Mohr reported it from Tuscaloosa County, and I have seen it in Autauga. It has very curious pods, apparently specially adapted

to attaching themselves to the feet of hoofed animals and being transported in that way. But it is said that they can be used for pickles when young.

Nuttall said of this in 1818 (2:53):—"Common around Lewistown in Delaware, also on the banks of the Ohio and Mississippi." Elliott in 1822 (2:130-131):—"Grows in dry soils, about buildings, Beaufort, Columbia, generally diffused but I suspect not indigenous." Chapman in 1860 (286):—"Waste places. Introduced." Gray in 1878 (2:321):—"Banks of the Mississippi and lower tributaries to New Mexico. Also naturalized or cultivated about gardens farther north."

PLANTAGINACEAE. Plantain Family.

Three genera and about 225 species, widely distributed.

PLANTAGO, Linnaeus. *The Plantains.*

Over 200 species, widely distributed, mostly in temperate regions. Alabama has one true native species, several alleged natives that are always weeds, and one or two admittedly introduced, besides two reported only on ballast.

P. major L., the common plantain, is so widely distributed over the Northern Hemisphere that it has been regarded as native in some of the northern states. Its habitats are much like those of *Prunella*, discussed several pages back, and when it grows on shady banks of streams it could almost be taken for native here. But its favorite habitats are shady yards, vacant lots, roadsides, etc., especially if the soil is damp or rich; and it is commonest northward. It blooms in summer.

Darlington said of it in Pennsylvania in 1837 (110):—"Moist rich grounds: foot-paths, &c. common. . . . A naturalized foreigner,—remarkable for accompanying civilized man,—growing along his foot-paths, and flourishing around his settlements. It is said our Aborigines call it "the white man's foot, from this circumstance."

P. Rugelii Decne. was originally described from specimens collected by Ferdinand Rugel near Decatur, Ala., about 100 years ago, and it is treated as a native in all our manuals. But it is so similar to *P. major* that it can be distinguished only on close examination, and it has just about the same weedy habitats. And instead of being a species more or less local in Alabama, as Chapman supposed in 1860, its range, according to Small's Manual, is from New Brunswick to North Dakota, Florida and Texas, and "naturalized further westward." So it may be nothing but a mutation or variant of *P. major*, which has about the same distribution in the United States, but is supposed to have originated in Europe.

P. major as described in Elliott's Botany of South Carolina and Georgia in 1816 (1:201) is identified by Mohr as *P. Rugelii*. Elliott said of it:—"Grows in

moist soils, preferring rich ones. Originally from Europe, now perfectly naturalized. Found by Dr. Macbride in the deep uncleared swamps along the Santee river. Flowers through the summer." Chapman in 1897 (390) gave its distribution as "Low ground in the upper districts;" the same as for the species immediately preceding it, which is undoubtedly native.

P. lanceolata L. (English plantain, or rib-grass.) Said to be introduced from Europe, where it is sometimes used medicinally, and for forage. Common on roadsides, along railroads, in vacant lots, etc., in all parts of the state. Blooms mostly in early summer.

Elliott said of this in 1817 (1:202):—"Grows generally in light soils. Originally from Europe, now naturalized. By the Milanese [in Italy] this is considered as one of the most valuable plants which enrich their meadows and give such high reputation to the product of their dairies. Pursh seems to suppose that this plant will be found distinct from the *P. lanceolata* of Europe. In the Southern States, however, it has every mark of an exotic plant, and is found only around settlements. . . . Around Charleston and Savannah now common. Flowers May-June, and occasionally through the summer."

Darlington said of it in Pennsylvania in 1837 (111):—"It is an introduced plant,—becoming very prevalent; and is generally much disliked on account of its seeds mingling with those of the red clover, and affecting the value of the latter, in the market. All kinds of stock eat it freely; and it has even been cultivated, by some farmers, as a sheep pasture. But I think it far from being a desirable plant on a farm." In Germany, where it is known as "Spitzwegerich," it is supposed to have medicinal properties.

P. Virginica L. An alleged native that is always a weed. Common on roadsides and in fields, nearly throughout the state, blooming in spring and disappearing in summer. Elliott said of it in 1817 (1:202):—"Grows in pastures and fields. Very common. Flowers March-April." Beck said of it in 1826⁸⁷:—"Near St. Louis and elsewhere—common," and remarked on its variability in size. Darlington in 1837 (110) found it characteristic of sterile old fields and stony hills in southeastern Pennsylvania.

P. aristata Mx. (*P. Patagonica aristata* Gray.) Probably of western origin. It was unknown to Elliott, and to Chapman in 1860, but the latter reported it in the second edition of his Southern Flora, 1883 (634), from "Alabama, Tennessee and westward," (without indication of habitat). Michaux described it in 1803 from the prairies of Illinois, and Mohr in 1901 seemed to regard it as native in dry sandy ground in Clay and Tuscaloosa Counties, with a general range extending from here to southern New York. Small in 1933 treated it as native on dry plains and prairies from Illinois to Alaska, Louisiana and New Mexico, and naturalized eastward to Florida and Maine.

⁸⁷Am. Jour. Sci. 10:264. 1826.

It might be native in some of the semi-arid western states, but in Alabama it is a common weed, on dry roadsides and in waste places, in most parts of the state. It is very variable. Some specimens have spikes only about half an inch long, with few flowers and short bracts, while others may have spikes four or five inches long, with conspicuous bracts. Any one seeing only the extremes would have little doubt that they were distinct species; but there are all gradations between, and the size and vigor of the plant seems to depend mostly on soil. The stunted specimens are mostly in hard dry soil, and are short-lived, while the vigorous ones are in looser richer soil, where their roots can penetrate to a sufficient supply of moisture, and they stay green much longer. Blooms in summer.

Some 19th century writers, such as Gray in 1878 and Chapman in 1897 (390-391) tried to distinguish between *P. Patagonica* and the variety *aristata*; but it seems better to regard them as mere extremes of a variable species, as suggested here.

***P. heterophylla* Nutt.** An alleged native that seems to be always a weed. It is an inconspicuous little plant, found in damp fields or on roadsides in spring, and disappearing in summer. *P. pusilla* Nutt., which has about the same habitat, may be only a depauperate form, analogous to the stunted forms of *P. aristata*, just mentioned.

RUBIACEAE. Madder Family.

About 350 genera and 5,000 species, mostly in the tropics. Many species are cultivated for ornament, and some yield foods, beverages (particularly coffee), medicines (particularly quinine) or dyes.

HOUSTONIA, Linnaeus.

This genus has been interpreted differently at different times, but according to Small's Manual (1933) it contains about 35 species, all North American. Mohr reported nine species from Alabama, all supposedly native, but two or three have weedy tendencies.

***H. caerulea* L.** (Bluets of northern books.) In various habitats, dry woods, rock outcrops, springy places, etc., usually in acid soils and mainly in the northern half of the state. Often in clearings, where it could hardly have been before the trees were cut away. Blooms all through the spring and early summer.

***H. minor* (Mx.) Britton.** (*H. patens* Ell.? Recently called *H. pusilla* Schoepf., and *Hedyotis crassifolia* Raf.) (Sometimes called "daisies" in the South.) Resembles the last, but is only about half as large, and the flowers

are darker blue. It is much more frequent in pastures, etc., than in any natural habitats. It blooms rather early in spring, and soon disappears.

Some interesting comparisons between this species and the preceding were made by Elliott in his *Botany of South Carolina and Georgia*, vol. 1, p. 192. But Chapman in 1860 regarded them as synonymous.

H. minima Beck, described in 1826⁸⁸ from fields about half a mile west of St. Louis, a near relative of *H. minor*, was reported by Mohr as rare on dry grassy banks and hillsides, [near?] Huntsville. I have not identified it.

H. rotundifolia Mx. (*H. procumbens* (Walt.) Standley.) A small prostrate or creeping plant with white flowers. Native in slightly damp sandy soils in and near the southwestern pine hills, but also occasionally a weed along paths, etc., in the same regions. The "*H. serpyllifolia*" reported by Lyell as abounding on a hotel lawn at Claiborne on Jan. 29, 1846, may have been of this species.

CEPHALANTHUS, Linnaeus.

About six species, shrubs and trees, in America and Asia. Only one in the United States.

C. occidentalis L. (Button-bush, elbow-bush, button-willow, globe-flower.) Native in swamps, sloughs, ponds, stream-banks, etc., in most parts of the state, and also an occasional weed in ditches, around artificial ponds, etc.

RICHARDIA, Linnaeus. (*Richardsonia*, Kunth.)

About eight species, natives of the warmer parts of America. Two introduced in Alabama.

R. scabra L. "Florida pusley" or "Mexican clover." Apparently native of Mexico. A common fall weed in sandy fields in the coastal plain. Reported also by Mohr from Cullman County. It may have come into Alabama since the Civil War, for it was unknown to Chapman in 1860, but reported by him from Alabama, Georgia and Florida (without indication of habitat) in 1883 and 1897. It was considered a rarity in Georgia when I reported it from Americus in 1900.⁸⁹ It is supposed to have some value for forage.

R. Brasiliensis (Moq.) Gomez. Native of South America. Similar to the preceding, but has considerably smaller flowers. Found in similar habitats, but much scarcer.

⁸⁸Am. Jour. Sci. 10:262. 1826.

⁸⁹Bull. Torrey Bot. Club 27:435. 1900. For a note on the formation of ice crystals on it in winter see Torrey, 38:1-2. 1938.

DIODIA, Linnaeus.

About 35 species, mostly American. Two or three in Alabama, alleged natives, but pretty weedy.

D. Virginiana L. Prefers slightly damp places, such as roadside ditches and low places on lawns. It hugs the ground pretty closely, so that it is not injured by a lawn-mower. It is pretty well distributed over the state, and blooms all summer. We may also have one or two closely related species, that are not readily distinguished.

D. teres Walt. (*Diodellea teres* Small.) Sometimes called "Poor Joe" in Georgia. Possibly native on rock outcrops, but nearly always a weed. Abundant on dry roadsides, in old fields, etc., practically throughout the state. Blooms mostly in early summer.

This was regarded by Neal in 1890 (15) as a pretty bad weed in Florida; worse than ragweed, careless, or crab grass.

SPERMACOCE, Linnaeus. (No common name.)

Four or five species, American. One or two in Alabama.

S. glabra Mx. Probably native on river banks, but grows also in weedy bottom lands. I have seen very little of it in Alabama.

S. parviflora (Meyer) Gray, reported by Mohr as having been collected by Dr. Eugene A. Smith at Mt. Pleasant, Monroe County, may have been only a transient, for Small (1933), who puts it in a different genus (*Borreria ocimoides* (Burm.) DC.), restricts it in the United States to South Florida.

GALIUM, Linnaeus. (*The Bedstraws, etc.*)

About 250 species, widely distributed. Mohr reported seven species and a variety from Alabama, and one or two others have been added since.

Our principal weedy one is **G. Aparine** L. It was most likely introduced from Europe, where it was characterized as a weed by Linnaeus when he described it in 1753. It was not mentioned by Elliott, or by Chapman until 1883 (624), when he said of it:—"Waste places, sparingly introduced." Gray said in 1878 (1:36):—"Shaded grounds, Canada to Texas, and Aleutian Islands to California; eastward mainly as an introduced plant, or appearing so. Eu., Asia.)" He also mentioned a smaller western variety, "certainly indigenous," but known also in Europe.

It grows mostly in waste places around cities and towns. And yet it is found occasionally in rich woods remote from habitations, where there are

no other weeds in sight, and it has every appearance of being native there. It blooms in spring and disappears completely in summer.⁹⁰

One or two other species have slightly weedy tendencies.

CAPRIFOLIACEAE. Honeysuckle Family.

About a dozen genera and 350 species, mostly woody plants of temperate regions. Many are cultivated for ornament.

SAMBUCUS, Linnaeus. *The Elders.*

About 25 species, mostly in temperate regions. One in Alabama. (One or two others farther north and south.)

S. Canadensis L. Elder. Presumed to be native, and may be so in alluvial bottoms, etc.⁹¹ but seen oftenest in rather weedy places, such as ditches, and commonly along roadsides that are not noticeably wet. Pretty widely distributed over the state. Blooms mostly in early summer.

As long ago as 1837 (205) Darlington assigned it only to fence-rows and thickets in southeastern Pennsylvania, and added:—"This is a rather troublesome plant, on our farms,—the long roots being very tenacious of life, and inclined to spread extensively, along fence-rows, and hedges."

SYMPHORICARPOS, Ludwig.

About ten species, North American shrubs. One in Alabama.

S. orbiculatus Moench. (*S. vulgaris* Mx.) (Coral-berry.) A medium-sized shrub, presumably native on dry limestone rocks in the Tennessee Valley, and also common on roadsides in that region, and occasional in neighboring regions which are not calcareous. Blooms in early summer.

⁹⁰In this genus the leaves are usually in whorls of four or six, and it is the custom of morphologists to assume that two leaves of the whorl are opposite leaves and the others stipules. But in *G. Aparine* the leaves are practically always seven in a whorl, although the stem is square, as in most other species. So how could one decide which ones are leaves and which are stipules?

⁹¹For a discussion of whether this species is native or not see Asa Gray and others in *American Naturalist*, 1:493-494; 2:38-39; 3:282. 1867-1869. Also Harper, *Torreya*, 34:108. Nov. 1934.

LONICERA, Linnaeus. *The Honeysuckles*,⁹² or *Woodbines*.

This genus has been variously subdivided, but in the broader sense it includes about 175 species, in temperate and tropical regions. Some are shrubs and some are woody vines. Alabama has two native species and one or two introduced ones, all vines.

L. sempervirens L. (*Phenianthus*, Raf.) Common honeysuckle, or woodbine. Widely distributed over the state. Its natural habitat seems to be bluffs, hammocks, and other places pretty well protected from fire, but it is nowhere abundant. It is also frequent on bushy roadsides. It blooms mostly in April, and is sometimes cultivated for ornament.

L. Japonica Thunb. (*Nintooa*, Sweet.) Japanese honeysuckle. Apparently first brought to this country for ornamental purposes, perhaps about the middle of the last century. It makes a pretty good porch vine, and bears fragrant flowers all summer. But it soon found our climate to its liking, and about fifty years ago it began to be recognized as a pest.⁹³ It now abounds along roads and railroads, in thickets, etc., practically throughout the state, especially near towns and farmhouses; and it seems to be spreading rather rapidly. In the vicinity of cities it invades patches of woods with dense tangles of vines, and threatens to choke out all other undergrowth; and it might ultimately kill out the trees too by preventing them from germinating.

Dr. Mohr reported a related species as an occasional escape near Mobile.

VALERIANACEAE. Valerian Family.

About nine genera and 300 species, widely distributed. A few are cultivated for food, medicine, or ornament.

VALERIANELLA, Pollich. (*Fedia*, Gaertner.)

About 50 species, in the Northern Hemisphere. Two in Alabama, both weeds.

⁹²In the South the name "honeysuckle" is commonly applied to species of *Azalea*, which belongs to a very different family, Ericaceae (not listed in this work because it contains no weeds). In New England the name is sometimes applied to a still different plant, the columbine (*Aquilegia*).

⁹³See J. K. Small, Bull. Torrey Bot. Club, 24:490. 1897; R. M. Harper, same, 27:340. 1900; E. F. Andrews, Science II. 47:142-143. 1918; Torreya, 19:37-43. 1919.)

V. radiata (L.) Dufr. Alleged to be native, because known only in the United States, and it is barely possible that it is native on rock outcrops, as claimed by McVaugh (1943) in the paper cited in the bibliography. But it was recognized as a weed by Linnaeus when he described it in 1753 (from "in Marilandiae arvis," meaning in fields of Maryland). Elliott, writing about it in 1816 (1:42) did not specify its habitat, but cited only three localities, one of which was at the Coweta (Indian) towns on the Chattahoochee River. Beck said of it in 1826:⁹⁵—"On the banks of the Mississippi. April-May." Darlington said of it in Pennsylvania in 1837 (11):—"Meadow banks: near West Chester: not common. . . . I strongly suspect this is an introduced plant,—at least in this County; and it seems very closely allied to the *V. olitoria*, of Europe."

Chapman in 1860 gave its habitat as "River-banks, Florida and northward." In Middle Georgia in the 90's I knew it only as a plant of granite outcrops in Athens (Bull. Torrey Bot. Club, 27:328. 1900.) But Mohr recognized it as a weed in 1901, and since then I have never seen it as anything but a weed. It is common on roadsides, in waste places, etc., dry or damp, nearly throughout the state, from the lime hills northward. Like many of our other weeds, it blooms in spring and disappears in summer. An interesting feature of it is that the stems fork at every joint, so that normally the number of flowers on a plant is a power of 2, varying from about 32 to 256 or perhaps even more, according to the fertility, texture and moisture of the soil.

V. Locusta (L.) Bettke. (*V. olitoria* Poll.) Native of Europe. Resembles the preceding, but is usually a smaller plant, with stems not so straight, and the flowers usually have a bluish tinge. It is fairly common on the campus of St. Bernard College, near Cullman, where it is said to have been originally cultivated for salad, and then escaped. I have seen it also in a weedy chalk prairie in Greene County.

Gray said of this in 1878 (1:44):—"Old fields near dwellings, New York to Penn. and Louisiana; not common." The only information Chapman had about it in the southeastern states in 1883 (625) and 1897 (203) was "New Orleans. Introduced."

A few other species, differing from the preceding ones mainly in minute characters of fruit, are described in the manuals as occurring in the eastern United States, but whether they are natives or weeds is not apparent from the descriptions.⁹⁶

⁹⁵Am. Jour. Sci., 10:261. 1826.

⁹⁶The North American species of this genus have been discussed by Sarah C. Dyal in *Rhodora*, 40:185-212. 1938.

CUCURBITACEAE. Gourd Family.

About 90 genera and 700 species, mostly tropical. Includes many important food plants, such as the pumpkin, squash, cucumber and cantaloupe, and several cultivated for ornament or other purposes.

This family is represented in Alabama by about three native species and a few comparatively rare escapes, ballast plants, etc. *Citrullus vulgaris* Schrad., the watermelon, is sometimes treated as naturalized because it come up along roads and railroads where its seeds have been dropped by persons eating the melons, but it probably does not perpetuate itself unaided. The gourd, *Lagenaria*, is said to escape sometimes.

CAMPANULACEAE. Bluebell Family.

About 40 genera and 1,000 species, mostly herbs, widely distributed in temperate and tropical regions. Many are cultivated for ornament.

CAMPANULA, Linnaeus. *The Bluebells.*

About 250 species, mostly European. Many cultivated for ornament. The genus has been subdivided by some authors, and our species has been put in a genus by itself, *Campanulastrum*, by Small.

C. Americana L. Native on limestone and shale bluffs, particularly in the Tennessee Valley and black belt. Also occasionally in weedy places, such as roadsides, usually near where it grows naturally.

SPECULARIA, Fabricius. (*Legouzia*, Durand.) (Venus' Looking-glass.)

About ten species, in warm regions. One or two in Alabama, weeds, very likely introduced from tropical America.

S. perfoliata (L.) A.DC.) (*Campanula amplexicaulis* Mx.) Commonly regarded as native, but grows also in several Latin-American countries, and could have been introduced from the south. It seems to be always a weed, and its favorite habitat is roadsides, in most parts of the state. Elliott said of it in 1817 (1:262)—"Grows in dry cultivated ground. Very common." Darlington said of it in Pennsylvania in 1837 (156):—"Pastures, and grain-fields: common. . . . Dr. Torrey mentions a small slender variety, with apetalous flowers, and 2-cleft calyx, which I have not observed here." (This was presumably *S. biflora*.) And Chapman in 1860 (257):—"Fields, Florida to Mississippi, and northward." It blooms in spring and disappears in summer.

On Sand Mountain it is sometimes cooked and eaten for greens in the spring, and called "wild lettuce."

S. biflora (R. & P.) F. & M. is generally treated as a distinct species; and the extreme form, with small leaves not clasping, and flowers few and small, looks distinct enough from the typical *S. perfoliata*. It is also known in tropical America, and might have been introduced at a later date than *S. perfoliata*; for it was not known to Elliott, or to Chapman in 1860. But Chapman had it in 1883 (632), from "Waste places and fields, Florida to South Carolina." And in 1897 (279) he said of its distribution, only:—"With the preceding, and probably a form of it."

However, it seems to be connected with *S. perfoliata* by intergrading forms, and it may be a mere depauperate form, caused by poor soil, as in the case of *Plantago aristata*, discussed above; or perhaps a comparatively recent mutation. If it is really a distinct species, introduced at a different time, it would seem strange that it would find its way to the same roadsides where *S. perfoliata* already grows, and associate with it intimately.

I have not always distinguished it in my notes, but it is commonly found in the same sort of places as the other is, but in slightly poorer soil if anything.

LOBELIACEAE. Lobelia Family.

This has been combined by some authors with the Campanulaceae, but in the narrower sense it includes about 20 genera and 600 species, in temperate and tropical regions. Several are cultivated for ornament, and a few are medicinal.

LOBELIA, Linnaeus. *The Lobelias.*

About 225 species, widely distributed. Twelve or 15 are known in Alabama, mostly unquestioned natives. But at least one is often if not usually a weed.

L. inflata L. (Indian tobacco.) Alleged to be native, but usually in weedy places. Dr. Mohr, who reported it from four counties in the northern part of the state, did not specify any habitat for it, and Elliott, in 1817 (1:266), did not either. Darlington said of it in 1837 (155):—"Pastures, roadsides, &c. frequent. . . . This is an acrid plant, possessing active emetic, cathartic, and narcotic properties; and may be used for good or for evil, according to the degree of skill and discretion with which it is employed." Chapman in 1860 (254) ascribed it to "Dry sterile soil in the upper districts." I have seen less of it in Alabama than farther north, but have found it mostly on grassy roadsides and in damp pastures, from Tuscaloosa

northward. This formerly enjoyed considerable repute as a medicinal plant, but is rather discredited now.

One or two other species, that grow naturally in wet places, may appear like weeds at times.

AMBROSIACEAE. Ragweed Family.

This is one of three families included by most 19th century botanists in the Compositae, but it seems distinct enough. The plants are all coarse and weedy-looking, with inconspicuous wind-pollinated flowers, and few if any of them have any useful properties. There are about eight genera and 75 species, mostly American.

IVA, Linnaeus.

About 20 species, American. Two native shrubby species along the coast of Alabama, and one or two weedy herbaceous ones in the interior.

I. ciliata Willd.(?) A coarse herb on roadsides, etc., in rather fertile soils; presumably introduced from farther west. Dr. Mohr found it in cultivated fields in Mobile County, and I have seen it near Bessemer and Epes. It is probably more widely distributed, for it looks much like the next species, and could easily be mistaken for it by any one passing it hurriedly.

AMBROSIA, Linnaeus. *The Ragweeds.*⁹⁰

About twenty species, American. About three in Alabama, all weeds, tall annuals, blooming in late summer.

A. trifida L. (Giant ragweed.) Supposed to be native, but might have been introduced from the tropics. Grows best in river-bottoms and other damp rich soils, but flourishes also along ditches and roadsides, especially northward. (Around New York City it is one of the commonest roadside weeds.) Darlington (479) found it in Pennsylvania in "Fence-rows, and low grounds; frequent."

A. artemisiifolia L. (This has been called *A. elatior* L. in some old and some recent books, but the former name will be more familiar to most readers.) Ragweed.

⁹⁰Nuttall in 1818 (2:186) called this genus "bitter-weed" instead of ragweed.

Alleged to be native, but grows also in Latin America, and might have been introduced from there. Small specimens are occasionally seen in fairly wild places, such as rock outcrops and open woods, but by far the most numerous and luxuriant specimens are weeds, on roadsides, in vacant lots, in fields after the crops are laid by, etc. It is reputed to be the principal cause of hay fever; and although apparently no animal eats it when it is mature, a report from Indiana indicates that it is sometimes eaten by cows when it is young, and gives their milk a disagreeable taste.

Elliott said of *A. elatior* in 1823 (2:477):—"Grows in pastures and rich soils, in the upper districts of Carolina and Georgia. Flowers July-September." Darlington said of it in Pennsylvania in 1837 (479):—"This worthless weed is usually very abundant among the stubble, after a crop of wheat; but if the land be good, the plant seems to give place, the next season, to the crop of clover and timothy." Chapman in 1860 (223) and 1897 (244) said of it:—"Cultivated ground everywhere."

Some interesting observations in its development in abandoned fields, made by Henderson in 1885, were quoted on page 64 under *Syntherisma sanguinale*. Some more scientific observations on the same problem can be found in the papers by Oosting (1940, 1942), cited in the bibliography.

Like many other weeds, it is variable, and more than one variety or species may have been included in it. A smaller form with paler and rougher leaves, possibly a distinct native species, is sometimes found in chalk barrens in the black belt; for example near Epes.⁹⁷

Dr. Mohr reported a western species, *A. psilostachya* DC., adventive with wool at Prattville, but it is not mentioned in Small's Manual. However, Small lists two other species that I have never identified, which from the ranges attributed to them might be expected somewhere in Alabama.

XANTHIUM, Linnaeus. *The Cocklebur.*

About five species according to Mohr, and forty according to Small (who also put into another genus some species treated as *Xanthium* by Mohr). But they are ill-defined, and no two authorities might agree on the number. They are widely distributed in temperate and warm regions. Dr. Mohr reported three species from Alabama. One of these, which I have never identified, is put in a different genus by Small. The differences between the other two must be comparatively slight, for all the *Xanthiums* I have ever seen could very well pass for one species.

⁹⁷For some recent taxonomic studies of this species see Fernald & Griscom, *Rhodora* 37:184-185. 1935; Jones, *Am. Mid. Naturalist* 17:673-700. 1936.

In the days of Elliott and Chapman that was called *X. strumarium* L., and supposed to have been introduced from Europe. Nuttall, however, said of it in 1818 (2:186):—"Indigenous to the remotest parts of Upper Louisiana" (presumably meaning the head-waters of the Missouri River). Elliott said of it in 1823 (2:479):—"Grows in fields and about buildings—very common but not indigenous." Darlington said of it in Pennsylvania in 1837 (478):—"Farm-yards, roadsides, &c. frequent. . . . This is an obnoxious weed—though not much inclined to spread; and, with a little attention, is easily to be kept in subjection. The burs are a great annoyance in the fleeces of sheep. Mr. Nuttall says it is indigenous in the West; but to me it has the appearance of a stranger, here." And Chapman in 1860 (224):—"Cultivated fields and waste places, common."

Gray in 1878 (1:252) said of *X. strumarium*:—"A weed of barnyards and in cult. grounds. (Sparingly nat. from Eu.? or Ind[ia].?)" And of *X. Canadense* (*X. Americanum* Walt.):—"Alluvial shores and waste grounds, from Texas to Saskatchewan, Nevada and California: perhaps extended northward by man's indirect agency."

In more recent years several other names have been applied to this species or slight variations of it, and the tendency has been to regard it as native, in spite of its obvious weediness. In Small's Manual it appears as *X. Americanum* Walt., regardless of the fact that Walter's original description (1788) is insufficient for positive identification, and no habitat was given for it.⁹⁸

Our plant, whatever its origin, is always a weed, and flourishes in cultivated fields in all parts of the state, especially in rich bottom-lands, late in the season. It is then too late to offer serious competition to crops, but it is annoying on account of its burs, which adhere to animals, and to the clothing of any one working in or passing through the fields.

It is said that this, as well as our species of *Ambrosia*, blooms only when the days are getting shorter. An experimental study of this phenomenon in *Xanthium* (identified as *X. Pennsylvanicum*), by Frances Lloyd (Mrs. A. W. Naylor), was published in the Botanical Gazette (Chicago), 103:146-154. September, 1941.

X. spinosum L. (*Acanthoxanthium*, Small), supposed to have been introduced from either Europe or tropical America, was reported by Mohr from waste places and waysides in Morgan, Montgomery and Mobile Counties; but it must be rare, for I have never seen it to know it.

Nuttall said of it in 1818 (2:186):—"At this time naturalized from Savannah in Georgia to Georgetown in the District of Columbia." Elliott in

⁹⁸For references to some attempts to untangle the American species of this genus see Chas. C. Deam, *Flora of Indiana* (1940), p. 962.

1823 (2:479) said:—"An exotic now common along the seacoast of Carolina and Georgia." Darlington in 1837 (478) said of it in Chester County, Pennsylvania:—"This execrable foreign weed was found, about 3 years since, partially naturalized in the N. West side of this County; but it is, as yet, happily, very rare. It will behove our farmers to be vigilant in arresting its progress, whilst it is yet within their control. It is becoming abundant in the vacant lots of Philadelphia, . . . where it was introduced a few years ago, from the South." Chapman said of it in 1860 (224), and again in 1897 (245):—"Waste places around the larger seaports, and sparingly in the interior. Introduced."

CARDUACEAE. Thistle Family.

This constitutes the great bulk of what used to be called the *Compositae* in 19th century books. It is still the largest family of flowering plants, including about 800 genera and 10,000 species, represented in practically every country in the world. The vast majority of the species are herbs. Many are cultivated for ornament, and a few for food, medicine, etc., but the weeds probably outnumber the useful plants in this family.

VERNONIA, Linnaeus. (*The Ironweeds.*)

About 500 species, mostly South American. Mohr reports four species from Alabama, all supposedly native.

One of them, which may be called provisionally *V. altissima* Nutt., is a common weed in low pastures, especially in the northern parts of the state, blooming in late summer, and rather showy. I am not sure that I have ever seen it in a natural habitat.

Nuttall, when he described it in 1818 (2:134), said of it:—"Near Savannah in Georgia, and throughout the states of Ohio and Kentucky, on the margins of streams and swamps, very common." Elliott in 1822 (2:289):—"Grows in ditches and damp soils." Chapman in 1860 (188):—"Low ground, Florida to North Carolina, and westward." Deam in 1940 (904) found it in a variety of habitats, nearly throughout Indiana.

EUPATORIUM, Linnaeus. (No common name in general use.)

About 500 species, mostly in warm regions. Mohr reported about 25 species from Alabama, all alleged to be native, but a few are always weeds, and others mainly or occasionally so.

E. capillifolium (Lam.) Small. (*E. foeniculaceum* Willd.) Sometimes called "summer cedar" northward, but more commonly "dog-fennel" southward. This is another good example of an alleged native species that is always a weed. Elliott said of it in 1824:—"Grows in pastures very abundantly, pre-

ferring damp rich soils. Dog-Fennel." It is a tall weed, rather graceful and feathery, common on roadsides, in old fields, pastures, and other places protected from fire, especially southward. It blooms in fall, but the flowers are small and inconspicuous.

E. compositifolium Walt. (*E. coronopifolium* Willd.) Dog-fennel. Similar to the preceding, but has coarser foliage. Prefers sandy fields and roadsides, mainly in the southern half of the state. Often springs up along dim roads through long-leaf pine forests, where it gets a little protection from the frequent fires.

E. Eugenei Small. (*E. Smithii* Greene & Mohr, a preoccupied name.) Another member of the dog-fennel group, described from Chambers County in 1901, without indication of habitat; but it is very likely a weed, like the preceding.

E. serotinum, Mx. Alleged to be native, but apparently always a weed. Said by Mohr to occur also in Mexico, and might have been introduced from there. Prefers damp and rather rich soils, such as roadsides, waste places, and low pastures. Pretty widely distributed over the state.

E. perfoliatum L. Boneset. Supposed to be native, in damp soils, but found usually in springy places, wet pastures, etc., that must be artificial clearings. Probably commonest northward. This was formerly used in domestic medicine.

Several other species with slight weedy tendencies hardly need to be mentioned here.

CONOCLINIUM, Linnaeus. (Formerly included in *Eupatorium*.)

Eight or ten species, mostly tropical. One in Alabama

C. coelestinum (L.) DC. An herb with handsome blue flowers, in fall, often mistaken for the cultivated *Ageratum*, and occasionally cultivated for ornament. Native in swampy places, mostly in the coastal plain, but also somewhat weedy, along damp roadsides, etc.

MIKANIA, Willdenow. (*Willugbaeya*, Necker; *Willoughbya*, Kuntze; *Willoughbaeya*, Porter & Britton; *Willoughbaea*, Britton & Brown.)

About 150 species, herbaceous vines, mostly in South America. One in Alabama; our only vine of this family.

M. scandens (L.) Willd. Native in wet places of various kinds, and also inclined to be weedy, climbing over roadside bushes, etc., much like the climbing buckwheat. Scattered over the state. Blooms in late summer.

LACINIARIA, Hill. (*Liatris*, Schreber.)

About forty species, mostly in the eastern United States. Mohr reported seven species and two varieties from Alabama, and a few others have been added since. All are supposed to be native, but one is usually if not always weedy, and some others occasionally so.

L. elegans (Walt.) Kuntze. All our other species have deep purple flowers, like the ironweeds, but this has white flowers,⁹⁹ which are shorter and less conspicuous than the pale purple involucral bracts surrounding them. It blooms in late summer, like most of the others. It is supposed to be native, and Elliott gave its habitat as "dry soils," and Chapman as "dry pine-barrens." But its typical habitat is sandy fields that have not been cultivated for several years. Dr. Mohr reported it from Autauga and several counties farther south, but I have recorded it only in Autauga and Bullock. It is commoner in Southwest Georgia.

AMPHIACHYRIS, DeCandolle.

Two species, western. One introduced in Alabama.

A. dracunculoides (DC.) Nutt. Supposed to be native in Texas, but where I have seen it there it is mainly a roadside weed, though it may be native in prairies.¹⁰⁰ Chapman first mentioned it in 1897 (237), without any indication of habitat, saying merely:—"Colbert County, Alabama (Mohr) and westward. August." Mohr in 1901 (769) gave the locality as "Tennessee Valley. Open grassy places. Colbert County (E. A. Smith). Flowers yellow. Local and rare." There was no intimation that it might not be native; but Small in 1903 either overlooked the records of Chapman and Mohr, or assumed that the plant was a mere fugitive in Alabama, for he gave its range as Missouri and Kansas to Texas. But in 1933 he changed it to Alabama to Texas, New Mexico, Kansas and Missouri.

There is said to be a specimen of it in the Mohr collection in the U. S. National Herbarium, from Colbert County, without indication of collector or date. In the Mohr herbarium at the University there are two specimens, and the label of one of them says:—"Dry open places, central districts. Dr. E. A. Smith. Locality not given." The other tells nothing about the locality, but bears the annotation:—"Frequent in Texas. I have never seen it in this state. C. M. Coll. E. A. Smith."

All this leaves its status in Alabama rather indefinite, but on August 29, 1937, I found it abundant around an abandoned farmhouse in a limestone

⁹⁹This important fact seems to be overlooked in all our manuals, even the most recent, perhaps because it is not readily observed in pressed specimens. See Bull. Torrey Bot. Club, 27:435. 1900.

¹⁰⁰What I guessed to be *Euphorbia hexagona* in the coast prairies of Texas in 1918 (Bull. Torrey Bot. Club, 47:312. 1920) was very likely *Amphiachyris*.

valley a few miles west of Grant, Marshall County, several miles from any railroad or highway, which is strange, for introduced weeds usually appear first along the main arteries of travel.

GRINDELIA, Willdenow.

About thirty species, mostly western.

G. lanceolata Nutt. The records of this in Alabama are even more puzzling than those of *Amphiachyris*. Chapman in 1883 (627) knew it only from cedar barrens, in Tennessee and westward, but in 1897 (237) he changed this to Tennessee, Alabama and westward, and did not commit himself as to habitat. Mohr said of it in 1901 (769):—"Jefferson County, Jonesboro. Flowers yellow; August. Local and rare." But Small in 1903 overlooked or discredited the Alabama record, though he admitted it in 1933.

The specimen in the Mohr collection in Washington is said to be labeled "Jonesboro, Dr. E. A. Smith," without habitat or date. In the Mohr herbarium at the University there are two specimens, both collected by Dr. Smith, one labeled "Colbert Co., Sept. 12, 1876," and the other "Prairies, Jonesboro, Colbert Co., Aug. 5, 1879. Rare."

Grindelia does grow in Colbert County (as noted below), but I have found no record of any Jonesboro in that county, though there have been places of that name a short distance east and also south of its borders. However, there has been a Jonesboro in Jefferson County, near the present site of Bessemer (and now included in Bessemer). It might have been a post-office as late as 1901, and one might reasonably infer that whoever edited Mohr's work in Washington, seeing Jonesboro on the label of the specimen there, located it in Jefferson County.

But Dr. Smith's field notes tell a different story. None for September, 1876, are preserved, but his Report of Progress for that year shows that he worked mostly in the Coosa Valley region (which would include the Jonesboro in Jefferson County, then a place of some importance) and Coosa coal fields. But taking the chance that the date on the label might be wrong, I looked in his notes for succeeding years, and found that in September, 1878, he was in Colbert County, and might have passed some places where *Grindelia* grows, though his notes do not mention any plants seen there.

But curiously enough, his notes for August 5, 1879, show that on that date he was unquestionably at Jonesboro in Jefferson County. I have seen no *Grindelia* in that county, but there are limestone outcrops, with a few prairie plants, in Jones Valley not far from Jonesboro, and it is within the bounds of possibility that the plant in question occurs there, or did once.

However, my acquaintance with *Grindelia* in Alabama is limited to some prairie-like but more or less weedy marly spots in the southern edge of Colbert County, not far from Littleville, where I have seen it a few times

in recent years (having previously met with it in the cedar glades of Tennessee). There it also spreads to roadsides near by, which affords the basis for classing it as a weed here. It is more or less associated there with the next species mentioned below, which was not known in Alabama until about ten years ago, and is probably a recent arrival from the West. And that throws a little suspicion on the status of the *Grindelia*, whose known distribution is mainly west of the Mississippi River.

CHRYSOPSIS, Nuttall.

The narrow-leaved species of this genus were separated as *Pityopsis* by Nuttall, but that distinction was almost universally ignored until revived by Small in 1933. It may be logical enough, but it seems more convenient to keep the genera together until *Pityopsis* is more widely adopted. According to Small there are twenty species of *Chrysopsis* proper and ten of *Pityopsis*, all North American, and the latter all eastern.

Seven species are credited to Alabama by Mohr, all native, but some have weedy tendencies. One weedy one not known to Mohr, and not even listed in Small's Manual, can now be added.

C. camporum Greene. (In *Chrysopsis* proper.) Now very common and conspicuous in fall, along roadsides and railroads in Colbert County, especially within several miles of Tusculumbia. I first collected it Oct. 7, 1934, but it may have been there long before that. It was presumably introduced from west of the Mississippi River. It resembles *Heterothea* (the next genus), but has larger flower heads.

C. (Pityopsis) graminifolia (Mx.) Nutt., native in dry pine woods, especially southward, is also frequently found along roadsides and in old fields.

HETEROTHECA, Cassini. (No common name.)

About six species, North American, mostly western. One in Alabama.

H. subaxillaris (Lam.) Britton & Rusby. (*H. Lamarckii* Cass.; *H. scabra* (Pursh) T. & G.) A variable species, perhaps divisible into more than one. A prostrate form seems to be native on drifting sands on Dauphin Island, and Dr. Mohr reported it also from similar places in Baldwin County. Taller forms are seen occasionally in sandy waste places in the coastal plain, and in recent years one has been quite abundant in and around railroad yards in Birmingham.

Elliott in 1823 (2:339), using the name *Chrysopsis scabra*, said of this:—"Grows on the sand ridges near the ocean, and in dry pastures."

ISOPAPPUS, Torrey & Gray. (No common name.)

Three species, all North American. One in Alabama.

I. divaricatus (Nutt.) T. & G. A tall weed with bright yellow flowers terminating slender branches, in fall. It was first discovered near Savannah, Ga., early in the 19th century, and Elliott said he had found it also near the "national establishment" on the Chattahoochee River, but he gave no indication of its habitat. Chapman attributed it to "Sandy fields and woods, Florida, Georgia, and westward." It is now known to range westward to Kansas and Texas, and it might have been introduced here from somewhere west of the Mississippi River in some manner before the days of railroads. At any rate, it seems to be always a weed. It is common in sandy old fields and on sandy roadsides, mostly in the coastal plain.

SOLIDAGO, Linnaeus. *The Goldenrods.*

A few small genera formerly included in this have been split off, but there are still about 125 species, mostly North American. Twenty-eight species and a few varieties were credited to Alabama by Mohr, and a few others may have been added since his time. All are native, or supposedly so.

Most of them grow in rather open woods, some in prairies, and are therefore not averse to invading old fields and other clearings. But one seems to be nearly always a roadside weed. That I have not studied closely, but it seems to what was called *S. Canadensis* L. in most 19th century books covering this part of the country, and *S. hirsutissima* Mill. in Small's Manual, 1933. Chapman said of *S. Canadensis* in 1860 (214) "Margins of fields, &c., Florida, and northward." It is pretty widely distributed over the state, but probably commonest northward. I have seen what appeared to be the same thing, from trains, common in southern Indiana, in September, 1938. But there it would seem to be what Deam in 1940 (923) called *S. altissima* L., which he said was "frequent to common in every county of the state," and in "all kinds of soils and habitats."

BACCHARIS, Linnaeus. (Apparently no common name in Alabama.)

One of the few shrubby genera in this family. About 300 species, evergreen shrubs, mostly South American. Two native along the coast of Alabama, one of these occasionally weedy.

B. halimifolia L. Native along the edges of brackish marshes, but inclined to spread inland. In Georgia in the last forty or fifty years it has become quite common in the wire-grass country (corresponding to our region 13, southwestern pine hills), especially around old sawmill sites. It is

not so widespread in Alabama yet, but I saw it as a weed near Fairhope in 1919, and have had a recent report of it from Covington County.

EUTHAMIA, Nuttall. (Formerly included in *Solidago*.)

About ten species, North American. Two have been credited to Alabama, but I have not found the broader-leaved one, which is commoner farther north.

E. minor (Mx.) Greene (*E. tenuifolia* Nutt.?) is supposed to be native, but is usually in rather weedy places, such as slightly damp sandy roadsides in the coastal plain. Its habitat is similar to that of the carpet-grass, with which it often associates.

BOLTONIA, L'Heritier. (No common name.)

About five species (superficially much like Asters), North American. One credited to Alabama.

B. diffusa Ell. Probably native in damp soils in the coastal plain, but seen oftenest in roadside ditches, etc. This is one of the species that Elliott discovered on his trip to central Alabama in the summer and fall of 1818. He said of it "Grows in damp rich soils between the Chatahouchie and Alabama." It is now said to range as far as Mexico.

B. asteroides (L.) L'Her., with wider leaves, a more widely distributed species, should be found in Alabama also, in similar habitats.

ASTER, Linnaeus. *The Asters.*

About 250 species, mostly North American. Twenty-six species and several varieties were credited to Alabama by Mohr, and a few others have been added since. As in the case of the goldenrods, all are supposed to be native, but several have weedy tendencies, and one is decidedly a weed.

A. pilosus Willd. The classification and nomenclature of this species are somewhat confused. For many years it went by the name of *A. ericoides* L., but the authorities have decided recently that *A. pilosus* is correct. In Mohr's Plant Life of Alabama *A. pilosus* appears as a variety of *A. ericoides*; but there may not be much difference between them. *A. ramosissimus* Mill., as described in Small's Manual, may fit our plant still better. It may also be what Elliott (2:349) identified as *A. multiflorus*, "in dry fields—Canada to Carolina."

Whatever it is, and whether or not it includes more than one species, it is alleged to be native but is always a weed. It is very abundant on roadsides, in old fields, vacant lots, etc., mostly in the northern half of the state. (Deam's account of the habitats of *A. pilosus*, in his Flora of Indiana, fits our plant very well.)

A. surculosus Mx. Not listed by Mohr, but moderately common in dry and rocky woods in the northern parts of the state. Also frequent on dry roadsides, particularly around Cullman.

A few other native species are found occasionally in weedy places, but it is hardly worth while to discuss them here.

ERIGERON, Linnaeus.

About 150 species, mostly American. Six species and a variety have been credited to Alabama, about half of them weeds.

E. annuus L. Generally regarded as native, but might have been introduced from Europe, or the West Indies. It is always a weed, and seems to be commonest along streets and in vacant lots in cities, such as Tuscaloosa. Blooms in early summer.

Darlington in 1837 (472-473) listed it as *E. heterophyllus*, and attributed it only to pastures and waste places. Gray said of it in 1878 (1:219):—"Fields and open grounds, common from Canada to Virginia; also in Oregon, &c., in a form quite intermediate between this and the following [*E. strigosus*]." Chapman did not list it until 1883 (627), when he said:—"Waste places, Florida, and northward. May and June."

E. ramosus (Walt.) B.S.P. (*E. strigosus* Muhl.) Possibly native in dry woods or prairies, but a very abundant weed of old fields, roadsides, etc., in most parts of the state. Blooms in early summer.

Elliott said of *E. ramosus* (*strigosus*) in 1823 (2:94):—"Grows in dry sandy pastures. Flowers May-August." Darlington in 1837 (471-472):—"This is also a very common, and worthless weed,—especially in the first crop of our upland meadows, after a course of grain crops. We have what appears to be the *E. integrifolium*, of Bigelow; but it is so blended with this, by intermediate specimens, that I suspect it is nothing more than a variety." And Chapman in 1860 (206):—"Dry old fields. Common. June."

In the northeastern quarter of the state, and in Middle and East Tennessee, especially in calcareous soils, a plant that appears intermediate between this and the preceding abounds in similar situations, and largely takes the place of it. It blooms in May and June. This may be the plant that Dr. Mohr classified as *E. ramosus Beyrichii* (F. & M.) Smith & Pound.

Small in 1894¹⁰¹ characterized *E. ramosus Beyrichii* as a "rare and distinct form," collected by Mohr on calcareous hills near Russellville; but in his Manual, 1933, he treated it as synonymous with *E. ramosus*.

¹⁰¹Bull. Torrey Bot. Club, 21:306-307. July, 1894.

E. Philadelphicus L. Another alleged native that is always a weed. Dr. Mohr noted it in 1901 as becoming troublesome in recent years, and called it a biennial. I never recognized it until about 1925, either because it was not common in Tuscaloosa before that, or I may have confused it with *E. annuus*. It is now common on and around the University campus, and I believe I have seen it in other cities, but rarely if ever in rural districts. It differs from some of the other species in being a winter annual. Its rosettes appear on lawns in October, and it blooms in March or April, and disappears in summer.

Elliott said of it in 1823 (2:396):—"Grows very common in pastures and fields. Flowers February-June." Darlington seemed to consider it a native woodland plant in Pennsylvania, if he had the same thing.

LEPTILON, Rafinesque. (Formerly included in *Erigeron*.)

About twenty species, in America and Asia. Two or three in Alabama, all weeds.

L. Canadense (L.) Britton. Horse-weed, or hog-weed. Alleged to be native, but grows also in Europe and Asia, and might have come from there. It ranges pretty well over the United States, and I have seen it near Bakersfield, California. Its favorite habitat is fields the year after cultivation, and there are often many thousands of plants to the acre. It also grows in various other weedy places. Like most other tall weeds, it blooms in late summer.

Nuttall said of this in 1818 (2:148):—"A most common weed, extending throughout North America and Europe." Elliott in 1823 (2:397):—"Grows in pastures and fields, very common, preferring dry soils. Flowers June-September." Darlington in 1837 (471):—"A common weed, and very variable in size. The *E. pusillus*, of Nuttall, is perhaps scarcely more than a variety."

L. divaricatum (Mx.) Raf. and *L. pusillum* (Nutt.) Britton, I have never distinguished, and they may be only varieties of the preceding. The last-named is said to grow also in Latin America, and might have been introduced from there.

L. linifolium (Willd.) Heller, introduced from the tropics, is a roadside weed in the coastal plain, smaller and much less common than *L. Canadense*. Elliott, who described it in 1823 (2:323) as a supposed new species, *Conyza sinuata*, said of it:—"This plant, which scarcely appears to be a native, . . . grows around Charleston—very common. Flowers April-July."

GNAPHALIUM, Linnaeus (*Everlastings, etc.*)

About 120 species, widely distributed. Four reported from Alabama, all weeds.

G. obtusifolium L. (*G. polycephalum* Mx.) Rabbit tobacco. Supposed to be confined to eastern North America, but always a weed, whether in the North or South. Grows principally in old fields. Commoner in northern than in southern Alabama, and still more so in some states farther north, such as Michigan.¹⁰² Blooms in fall. *G. Helleri* Britton, a related species, I have not distinguished.

G. purpureum L. (*G. hyemale* Walt., a more or less appropriate name.) Supposed to be native, but known also in Latin America, and might have been introduced from there. Common on roadsides and in waste places. A winter annual, blooming in spring and disappearing in summer. Elliott said of both this and the preceding, 120 years ago (2:325-326):—"Grows in dry pastures—very common."

G. spathulatum Lam., a related species, said by Mohr to be introduced from the tropics into the southern half of the state, I have not identified in Alabama unless in gardens in Tuscaloosa. It may be a recent introduction, for it was not known to Chapman in 1897. According to Mohr it blooms through the summer.

A narrower-leaved form, sometimes growing with it and sometimes in poorer soil, is probably what has been called *G. falcatum* Lam. It may represent a variation like that noted in *Plantago aristata*, rather than a distinct species.

FACELIS, Cassini. (No common name.)

About three species, South American. One introduced in Alabama.

F. retusa (Lam.) Sch. Bip. (*F. apiculata* Cass.) Native of southern South America. This seems to have been first noticed in the United States around Augusta, Georgia, about the beginning of the present century. I first encountered it in Alabama a little south of Tuskegee in April, 1927. But according to Romm (1937, see bibliography) it had been observed in that neighborhood since about 1921, and he had watched it since 1926. I have since seen it in several counties in the southwestern part of the state, and as far inland as Tuscaloosa. Its usual habitat is dry pastures, lawns, and other grass-lands. It blooms in spring and disappears in summer.

FILAGO, Linnaeus.

A small genus, chiefly of the Old World, here regarded as including *Gifola*, *Filaginopsis*, and *Evax*. None of these were reported from Alabama by

¹⁰²White Plains, New York, is said to have derived its name from the abundance of this species there at the time of first settlement. See Gannett. U. S. Geol. Surv. Bull. 25:324. 1905.

Mohr, but I have collected what appears to be *F. Germanica* L. (native of Europe) in somewhat weedy places in or near chalky prairies in Hale and Dallas Counties.

ACANTHOSPERMUM, Schrank. (*Paraguay bur.*)

Three or four species, mostly South American. Three introduced in Alabama.

A. australe (L.) Kuntze. (*A. xanthioides* DC.) Native of South America, not known in the United States until after the Civil War, when it was said to have been introduced with wool at Augusta, Georgia. A prostrate weed, with about five widely spreading achenes to a head, studded with soft curved prickles, and probably well adapted to clinging to the wool of any sheep that might lie on it. Grows in rather bare soil along roads, railroads, etc. Frequent in southern Alabama, commoner in Georgia. I have seen it as far north as Warrior and Russellville, but it is commoner in the southern half of the state.

Gray said of it in 1878 (1:329):—"Roadsides and waste grounds, S. Carolina to Florida, &c. (Nat. from S. Amer.)" Chapman in 1883 (628):—"Introduced from South America several years ago, and now widely disseminated." Neal in 1890 (13):—"The Paraguay bur, introduced at Augusta, Georgia, in wool brought from Paraguay, some twenty years ago, has now spread over Florida, and is as far south as Bronson."

I found it in Athens, Georgia, in 1896,¹⁰³ and a few years after that it was one of the commonest weeds in southeastern Georgia.¹⁰⁴ In 1906 I traced it northward along railroads to Virginia.¹⁰⁵

A. hispidum DC. Differs from the preceding in being a foot or so in height and bushy-branched, and in other ways. Seen in 1912 in sandy fields a few miles southeast of Troy. I have also seen it in one or two places in Georgia and Florida.

Another species, which I have not seen, was reported by Mohr from ballast in Mobile County.

SILPHIUM, Linnaeus. (*The Rosinweeds.*)

About thirty species, North American. Alabama has an interesting assortment of them. Eleven species (two of them discovered by him, in Cullman County) and a variety were reported by Mohr, and two or three others have been added since. All are native, mostly in dry woods and

¹⁰³See Bull. Torrey Bot. Club, 27:341. 1900.

¹⁰⁴See Ann. N. Y. Acad. Sci., 17:114, 141, 392. 1906.

¹⁰⁵Bull. Torrey Bot. Club, 34:368. 1907.

prairies, but some have weedy tendencies. Even *S. Mohrii* Small, not yet known outside of Alabama, is sometimes a roadside weed in the Tennessee Valley and on the plateau. Our weediest species perhaps is *S. Asteriscus* L., which grows in dry woods in several regions, and also in clearings and old fields.

S. perfoliatum L., the "cup plant" of the upper Mississippi Valley, I have seen only twice in Alabama, both times on damp weedy roadsides in creek bottoms in the black belt, in Hale County; first a few miles south of Newbern, Sept. 2, 1922, and next about 15 miles southwest of Greensboro, June 13, 1923. Elliott knew this species only by hearsay, from the mountains. Chapman said of it in 1860 (221):—"Banks of streams along the mountains of Georgia, and northward. July-Sept." Mohr had no record of it from Alabama, but Lowe in 1921 (282) reported it from Collins, Miss., which is in Covington County, in the long-leaf pine country, strange to say.

The smaller related genus *Berlandiera*, with one species in Alabama, *B. pumila* (Mx.) Nutt. (*B. tomentosa* Nutt.), native in dry open woods in the coastal plain, also often strays to roadsides and old fields.

PARTHENIUM, Linnaeus. (No common name.)

Ten or twelve species, American. One native and one introduced in Alabama.

P. integrifolium L. Native in dry open woods in the northern half of the state; not common. Also grows in old fields, clearings, etc., much like *Ipomoea pandurata* and several other species previously discussed. Blooms in summer.

P. hystrophorus L., presumably native of Latin America, grows along streets and in vacant lots in some of our cities, such as Birmingham, Tuscaloosa, Selma, Demopolis and Mobile, and seems to thrive better in large cities than in small ones, for some unknown reason. (It is quite common in New Orleans, where I first became acquainted with it in 1905.) It is rarely if ever seen in rural districts. Blooms in late summer.

ECLIPTA, Linnaeus. (Called *Verbesina* L. in Small's Manual, 1933.)

About four species, natives of the tropics. One in Alabama.

E. alba (L.) Hassk. (*Verbesina alba* L.) A disreputable-looking little weed, growing mostly in damp and somewhat shady places in cities. Not common. Blooms in summer and fall. I have noticed it on the banks of the Tennessee River in northeastern Morgan County, on the Tombigbee River,¹⁰⁹ and in the streets of Cullman, and probably elsewhere.

SPILANTHES, Jacquin. (No common name.)

About thirty species, mostly in tropical America. One in Alabama, probably introduced.

S. repens (Walt.) Mx. (*S. Americana* (Mut.) Hieron. in Small's Manual.)

Commonly supposed to be native, but seems to be a weed. Mohr found it in "low damp places, damp thickets, and cultivated ground," in Baldwin and Mobile Counties, and I found it once at St. Stephens bluff in Washington County. Blooms in late summer and fall.

RUDBECKIA, Linnaeus. (*The Cone-flowers.*)

About forty species, North American. Nine species and a variety were reported from Alabama by Mohr, but one of those is now referred to another genus. They are natives, but some have weedy tendencies.

R. hirta L., the common "black-eyed Susan," is doubtless native in dry open woods, but is equally common in old fields and on roadsides. Gray, writing about it in 1879 (see bibliography), said that fifty years before (which was before the days of railroads) it was unknown east of the Alleghanies, but it had since become abundant and conspicuous throughout the eastern states, its seeds having been accidentally brought in with red clover seed from the West. But he exaggerated a little, for Elliott, in 1824, seemed to have no doubt about its being native in South Carolina; and Linnaeus described it in 1753 from Virginia and Canada. Darlington said of it in southeastern Pennsylvania in 1837 (481):—"Fence-rows, and thickets: not very common."

DRACOPIS, Cassini. (No common name.)

One species, as follows.

D. amplexicaulis (Vahl) Cass. (*Rudbeckia amplexicaulis* Vahl.) Alleged by some to be native, and it might be so in Texas, but in Alabama it seems to be always a weed, mainly in chalky fields in the black belt. It is one of several species with showy flowers that are abundant and conspicuous there in early summer.

This may be a comparatively recent arrival in Alabama. Gray said of it in 1878 (1:263):—"Low grounds, Louisiana and Texas. (Adj. Mex.)" And Chapman in 1883 (629):—"New Orleans, . . . and westward." Mohr knew it from Dallas and Mobile Counties, and said "adventive from the Southwest."

¹⁰⁰See Bull. Torrey Bot. Club, 37:115, 119. 1910.

RATIBIDA, Rafinesque. (No common name.)

About six species, North American. One in Alabama.

R. pinnata (Vent.) Barnhart. (*Lepachys pinnata* T. & G.) Grows in dry calcareous soils, in the Tennessee Valley and the black belt. Perhaps native, but found usually in pretty weedy places, such as roadsides. Like the preceding, it is abundant and conspicuous in early summer. Its principal range seems to be in the Mississippi Valley, from Minnesota to Louisiana.

Gray said of it in 1878 (1:264):—"Dry prairies, W. New York to Michigan and Iowa, south to W. Florida and Louisiana."

TETRAGONOTHECA, Linnaeus.

About five species, American. One in Alabama.

T. helianthoides L. A coarse spreading herb of rather unique appearance, sometimes called "ginseng" in Georgia, though it bears no resemblance to the real ginseng. Grows in dry open woods, mostly in the southern half of the state, but often found in cleared places along roads and railroads. I have noted it particularly along the railroad between Wawbeek and Flomaton, Escambia County, May 19, 1927.

HELIANTHUS, Linnaeus. *The Sunflowers.*

About 100 species, mostly in the semi-arid parts of North America. About 15 species and a few varieties have been reported from Alabama, and more could probably be found. Nearly all of ours are native, in dry woods, etc., but some of them also flourish along roadsides, as in several other genera of this family.

H. angustifolius L. is probably found oftener on damp sandy roadsides and in meadows than in perfectly natural habitats.

Dr. Mohr reported one supposed native species, *H. debilis* Nutt., as known to him only in cultivated fields near the coast, where he saw it only in 1888.

The common large cultivated sunflower, *H. annuus* L., supposed to be native west of the Mississippi River, may escape from cultivation occasionally.

VERBESINA, Linnaeus.

This genus has been variously classified, and the species referred to it by Mohr and his contemporaries are put in *Phaethusa*, *Pterophyton* and *Ridan* in Small's Manual. But the name *Verbesina* will be retained here for convenience. All those in Alabama are supposed to be native, but some are rather weedy.

V. occidentalis L. grows in rather rich soils, but usually along roads and railroads, where it is often abundant. It blooms in late summer. On frosty mornings in the fall ribbons of ice often exude from the lower part of the stem, an interesting phenomenon that city dwellers seldom see, because they are not likely to get out in the country on such mornings before the delicate ribbons melt.³⁰⁷

Much the same may be said of *V. Virginica* L., except that it is less common.

COREOPSIS, Linnaeus.

About fifty species, mostly in warm regions. Mohr reported 13 species and a variety from Alabama, and a few have been added since. The majority are native, but some of them have weedy tendencies.

C. tinctoria Nutt. is probably native in prairies west of the Mississippi River, where it was discovered by Nuttall about 1820. In Alabama it is cultivated for ornament, and escapes, usually in and near cities, such as Tuscaloosa and Mobile. But I have seen it also remote from towns, as in Bibb County. It blooms in early summer.

C. pubescens Ell. may be native in dry sandy woods in the coastal plain, but I have seen it mostly on sandy roadsides, in Tuscaloosa and Autauga Counties. It is another early summer bloomer.

C. tripteris L., found chiefly in richer soils, and in the northern parts of the state, where it blooms in late summer, is also inclined to be weedy. Chapman said of it in 1860 (234):—"Woods and margins of fields, Florida to North Carolina, and westward."

C. Drummondii (D. Don) T. & G. In Gray's time, 1878 (1:291) this was known only in Texas, and cultivated farther east. Mohr (805) reported it as escaped or adventive on the eastern shore of Mobile Bay near Daphne, and in similar situations along Mississippi Sound near Pascagoula, Miss.

BIDENS, Linnaeus. (*Beggar-ticks, etc.*)

About 75 species, widely distributed, often in wet places. Seven species and a variety, all more or less weedy, have been reported from Alabama.

³⁰⁷For some accounts of this phenomenon, with references to previous literature, see Torrey, 31:111-114. Aug. 1931; 38:1-4. Feb. 1938.

B. frondosa L., an alleged native species, grows mostly in ditches and miry places. Darlington over 100 years ago attributed it only to gardens, fence-rows, etc., in southeastern Pennsylvania. Dr. Mohr called it a "common pernicious weed," but I would not put it so strongly, for it is not as common in Alabama as in some states farther north, and it grows mostly in places where it can do little or no harm. In the northern states there are a few varieties, or related species, some of which may be in Alabama and not yet recognized.

B. bipinnata L. Spanish needles. This may be native in rich woods, on mountain slopes, etc., but it is seen oftenest in rich soil near dwellings, especially in the country. It is a nuisance on account of its barbed achenes, which when ripe readily adhere to the clothing of any one who brushes against them.

B. leucantha Willd.¹⁰⁸ is reported by Mohr as being "fugitive on ballast" in Mobile County, from 1889 to 1892. It is one of the commonest weeds in southern Florida, where it blooms all the year round, and makes a rather attractive appearance, on account of its large white flowers. But it is very tender, and hardly survives the winters in the latitude of Mobile, or in northern Florida except near the east coast.

GALINSOGA, Ruiz & Pavon. (No common name.)

About five species, in the warmer parts of America. One introduced in Alabama.

G. parviflora Cav. (or *G. ciliata* (Raf.) Blake, treated as a different species in Small's Manual), native of South America, has been common around New York City for forty or fifty years (it was pointed out to me there in 1899); but seems to maintain only a precarious foothold in Alabama, which seems rather strange. Gray said of it in 1878 (1:303-304):—"Open or waste grounds, perhaps indigenous to New Mexico and Arizona, an introduced weed about gardens in the Northern States." Chapman did not list it in 1897, but Dr. Mohr reported it in 1901 as becoming troublesome in Mobile County, and I have seen a few specimens on the University campus in Tuscaloosa, but not very recently. Deam (1886) says it was first noticed in Indiana in 1911, and is now common in cultivated fields in the southern part of the state, and expected to become a pest throughout.

MADIA, Molina. *The Tar-weeds.*

Several species, found mostly near the Pacific coast of North and South America. One recently introduced into Alabama.

¹⁰⁸In Small's Manual, 1933, this species is referred to *B. pilosa* L. But the description of that in Elliott's Botany of South Carolina and Georgia seems to indicate some quite different plant.

M. sativa capitata (Nutt.) Piper. (*M. sativa congesta* T. & G.) In the last 15 or 20 years this has appeared sporadically in Alabama, Georgia and Florida, usually on lawns, where it is often soon eliminated by mowing. I have seen it in Tuscaloosa in several different years, but not for about two years past. It blooms mostly in May. It is a fairly common weed in California (perhaps originally from Chile), and may have been brought eastward from there by the transcontinental automobile traffic of recent years. Deam cites a few specimens found in northwestern Indiana in 1929, and Moldenke (1941, in bibliography) records its occurrence recently as far east as New York.

HELENIUM, Linnaeus. (Including *Leptopoda*, Nuttall.)

About 25 species, North American. Eight species and a variety reported from Alabama, most of them native.

H. tenuifolium, Nutt. Bitterweed. A long story could be written about this, but only a brief summary can be given here. It is supposed to be native somewhere west of the Mississippi River, but it appears just as weedy now in Oklahoma and Texas as it does in Alabama. When Nuttall described it in 1834 he ascribed it to "Mississippi and Alabama" only, but there may have been some mistake about that. Dr. Mohr's first records of it in Alabama are Bladen Springs, 1859, and Mobile, 1866. Chapman said of it in 1860 (239):—"Road-sides, West Florida, and westward. September." In east-central Alabama there is a tradition that it came in with the Union armies during the Civil War, and for that reason some called it "Yankee weed."

On my first visit to Fort Payne, in 1905, I was told that it was first seen there during the boom, about 1890. When I lived in Dalton, Georgia, from 1887 to 1892, I never heard of any such plant; but it was there in abundance in 1900.¹⁰⁹ And by that time it was just about the commonest weed in the wire-grass country of Georgia, a comparatively newly settled region, which was then only about one-tenth cultivated.¹¹⁰

In 1900 I was told that it was driving out the dog-fennel (*Anthemis Cotula*, a European weed previously established there) in Dalton, Ga. And Dr. Eugene A. Smith had made a similar observation in Florida about twenty years before.¹¹¹

It is now found in practically every region in Alabama, on roadsides, in pastures, etc., but less frequently in fields that are not pastured; and at present it is just about the commonest weed in the state. It blooms all summer, and if it was a rare native plant it might be considered handsome,

¹⁰⁹See Bull. Torrey Bot. Club, 28:404. 1901.

¹¹⁰See Ann. N. Y. Acad. Sci., 17:114, 136, 392. 1906.

¹¹¹U. S. Tenth Census, 6:216. 1884.

on account of its numerous bright yellow flowers. But it is universally despised, because when cows eat it, as they are apt to do in spring, when it is small and not easily distinguished from the grass, it gives their milk a bitter taste.

Strange to say, we do not yet know how its seeds have been carried to every county in the state. Its achenes are surmounted by small pointed scales, too small to serve effectively as "parachutes," that many other members of this family have, and they do not seem well adapted to attaching themselves to passing animals. But cows may have something to do with spreading it, for it is common in pastures. A grassy field or weedy lawn on University property in Tuscaloosa, in which people living near by were formerly allowed to tether their cows, used to have plenty of bitterweed. But in the last few years, since the grazing there has been discontinued, I have seen none of it there. Being an annual, it is fairly easy to control by mowing, and very likely the field is mowed oftener now than when it was used as a pasture.

If the present range of this species were plotted on a map, its northern and southern limits would be seen to correspond pretty closely with those of the cotton crop; from which we may infer that its climatic requirements are much the same as those of cotton, and that it is not likely to spread much farther.

H. nudiflorum Nutt. Apparently native in prairies in some of the southwestern states, and perhaps also in some prairie-like places in Alabama. But it is commonly seen in low pastures, poorly drained lawns, etc. It blooms mostly in early summer, and if mowed it may come up and bloom again in two or three weeks.

This species was not known at all in Elliott's time, but in 1860 (240) Chapman said of *Leptopoda brachypoda* T. & G. (which is now supposed to be the same thing) "River-banks, Florida to North Carolina. May and June." Gray said of it in 1878 (1:349):—"Low ground, N. Carolina and Illinois to Arkansas and Texas; and naturalized eastward." Mohr in 1901 (810):—"Waste places, exciccated exposed ground, pastures." (Montgomery County, and southwestward.) Deam, in his *Flora of Indiana*, 1940 (988), says in part:—"Apparently restricted to the southern part of the state, . . . It is a weed and is likely to appear almost anywhere. . . . It is reputed to be very poisonous to stock."

H. autumnale L. Supposed to be native in damp places in most parts of the United States; but commonly found in low pastures and other more or less weedy places.

GAILLARDIA, Fougeroux.

About twenty species, mostly in the Southwest. Some cultivated in the East for ornament. Two species and a variety have been reported from Alabama.

G. lanceolata Mx. Probably native in dry sandy open woods in the coastal plain, especially where the sand is rather loamy. Also frequent on sandy roadsides, etc., in the same regions.

G. pulchella Foug., found by Dr. Mohr in the black belt, and on an island at the head of Mobile Bay, is probably introduced from the West, or even escaped from cultivation.

HYMENOPAPPUS, L'Heritier.

About seven species, North American. One in Alabama.

H. scabiosaeus L'Her. (*H. Carolinensis* (Lam.) Porter.) This is supposed to be native, but is found mostly on roadsides and in old fields, in dry but moderately rich sand; much the same sort of habitat favored by *Gaillardia lanceolata*. It is not common in Alabama, though it ranges considerably to the east and west of us. I have seen it in Pike County, a few miles east of Troy.

Elliott said of it in 1823 (2:313):—"Around ponds . . . I believe very rare." Chapman in 1860 (239):—"Light dry soil, Florida to South Carolina, and westward."

ACHILLEA, Linnaeus.

About 75 species, mostly in Europe and Asia. One introduced in Alabama.

A. Millefolium L. Yarrow. Around dwellings, on roadsides, etc., mostly in the northern parts of the state. Probably at least in part escaped from cultivation, as it is an old-fashioned medicinal herb, and is somewhat ornamental besides. But it has been considered native in some of the northern states. Elliott said of it in 1823 (2:406):—"An exotic like the preceding [*Anthemis Cotula*], not so generally naturalized, but found very frequently around buildings. Flowers June-August." Darlington said of it in Pennsylvania in 1837 (490):—"Pastures, fence-rows, &c. common. . . . This foreigner is now extensively naturalized. The Europeans seem to consider it as a plant of some value in their pastures. But it is here universally, I believe, regarded as a mere weed." Chapman said in 1860 (242):—"Old fields and around dwellings. Introduced May-Sept."

ANTHEMIS, Linnaeus. (Including *Maruta*, Cassini.)

This genus has been variously divided, but in the broader sense includes about 100 species, natives of the Old World. Our common species is often put in another genus, *Maruta*.

A. Cotula L. (*Maruta Cotula* (L.) DC.) Dog-fennel (or May-weed). Very common on roadsides, in vacant lots, etc., especially northward. Blooms in early summer and disappears in late summer. Said to have been supplanted in some places by *Helenium tenuifolium* (which see, above). Elliott said of it in 1823 (2:405):—"An exotic now extensively naturalized. Grows in damp clayey soils. Flowers May-June." Darlington in 1837 (489):—"A disagreeable little foreign weed, now extensively naturalized." And Chapman in 1860 (241):—"Waste places. Introduced. May and June." Neal in 1890 (13):—"Dog fennel (*Maruta*) has reached Tallahassee in its southward march."

LEUCANTHEMUM, Miller. (*Chrysanthemum*, Linnaeus, in part.)

About twenty species, in the Northern Hemisphere. One introduced in Alabama.

L. vulgare Lam. (*Chrysanthemum Leucanthemum* L.) (White, or ox-eye) daisy.

Native of Europe. One of the commonest weeds in the northeastern states, especially in hay fields, where it is objectionable on account of its bitter taste. But the climate of Alabama does not seem to suit it so well, and it is not abundant anywhere here, and is sometimes even cultivated for ornament. Dr. Mohr said of it, "throughout the state," but I have not seen it south of the black belt, and very little of it there. Even in the Tennessee Valley it can hardly be called common. It blooms in early summer.

Elliott said of it in 1823 (2:400):—"An exotic now naturalized, particularly in the upper country. Flowers May-June." Darlington, who lived where it was more abundant, said of it in 1837 (490):—"This vile foreign weed, from the culpable negligence of the farmers, has become a serious nuisance in many neighborhoods; and threatens to overrun the whole country." Chapman's account in 1860 (242) was less definite than Elliott's, as follows:—"Fields. Introduced. May and June." Small in 1933 said that it was widely distributed in the southern states during the Civil War; but the authority for that statement is at present unknown to me.

The American plant is said to differ a little from the European one, as if it had undergone a slight evolutionary change since it arrived in this country, which might have been as much as 300 years ago.

ARTEMISIA, Linnaeus. (*Wormwood*, etc.)

About 250 species, in temperate regions. Many in the western states, where they are commonly called "sage-brush."

A. caudata Mx. (?). Noted in vacant lots in Tuscumbia and collected in a barn-yard in northern Franklin County, in October, 1940.

SOLIVA, Ruiz & Pavon. (No common name?)

About three species, South American. One introduced in Alabama.

S. sessilis R. & P. A small pale green prostrate weed, with inconspicuous green flowers, blooming in spring, soon maturing its spiny-tipped achenes, and disappearing in summer. Grows in vacant lots, along streets and roads, etc.

This was known in the West long before it was in the South, and may be a comparatively recent arrival in this part of the country; though it is very common around Claiborne, which saw its best days about 100 years ago, and it might have been there a long time before any botanist noticed it. But if it had been in Mobile in Dr. Mohr's time he could hardly have overlooked it.

Gray said of it in 1878 (1:365):—"Moist ground, coast of California, from Santa Barbara to Mendocino Co. (Chili, whence probably introduced.)" It was not mentioned in the second edition of Small's *Flora*, 1913; and apparently the first report of it in the southeastern states was by Rydberg in 1916,¹¹² who credited it to Mississippi. I first saw it in Conecuh County in April, 1927, and soon afterward in Monroe County, and near Bay Minette and Calvert and in the city of Mobile.

Although this is supposed to be a native of South America, it may be just as much of a weed there as here. Dr. Thomas Morong, a prominent 19th century botanist (born in Cahaba, Ala.), observed it in the spring (October) of 1888 among other weeds in a garden at LaPlata, Argentina, about twenty miles south of Buenos Aires.¹¹³

GYMNOSTYLES, A. Jussieu. (No common name.)

About three species, South American. One or two introduced in Alabama.

¹¹²N. Am. *Flora*, 34:287. "Dec. 29, 1916." For an additional note see Torrey, 37:107. 1937.

¹¹³See Bull. Torrey Bot. Club, 16:43-49. Feb. 1889.

G. nasturtiifolia A. Juss. (*G. stolonifera* (Pers.) Nutt.; *Soliva nasturtiifolia* DC.) A diminutive prostrate weed, with rosettes of dark green pinnatifid leaves and a sessile woolly "button" of inconspicuous apetalous flowers in the center of each; blooming in spring and disappearing in summer, like the preceding.

Grows in barnyards, around dwellings, along streets, etc., in places where the soil is moderately rich, but rather bare. Observed in Talladega, Tuscaloosa, Autauga, Dallas, and perhaps a few other counties. Often intimately associated with *Carara didyma*, which it strongly resembles in foliage, though the two plants are not at all closely related.¹¹⁴

This seems to have reached the United States long ago, but for many years was known only in South Carolina. Nuttall in 1818 (2:184-185) quoted Elliott as saying that it was "commonly diffused over the maritime parts of South Carolina." Elliott's Botany of South Carolina and Georgia was then in course of publication, and the part dealing with *Gymnostyles* came out a few years later. In that (2:473) he attributed it to "damp sandy soils," and cited three localities, in and near Charleston. Chapman said of it in 1860 (243) and 1897 (265):—"South Carolina, around Charleston. Introduced. Feb.-May." Gray in 1878 (1:366):—"A humble weed, near dwellings, coast of N. Carolina to Georgia. (Nat. from Buenos Ayres.)"

Dr. Mohr had no record of it in Alabama in 1901, and Small said of it in 1903 and 1913 (1299):—"In waste places, North Carolina to Florida." In the last fifteen or twenty years I have seen it at a few places in Georgia, Florida, Mississippi and Louisiana, as well as in Alabama.

ERECHTITES,¹¹⁵ Rafinesque. (No common name in Alabama.)

About a dozen species, in America and Australia. One in the United States.

E. hieracifolia (L.) Raf. Alleged to be native, but always weedy. In some of the northern states it appears promptly after forest fires and flourishes for a few years, and is one of the plants called "fireweed." In the South it grows in various kinds of weedy places, such as new clearings, rubbish dumps, roadsides, etc., often arriving quickly from some unknown source when the natural conditions are disturbed.

Darlington said of it in Pennsylvania in 1837 (498):—"This plant is remarkable for its prevalence in newly cleared grounds,—especially in and around spots where brush-wood has been burned;—whence the common name, "fireweed." Gray said of it in 1878 (1:396):—"Moist woods and

¹¹⁴See Torrey, 37:104-108. Oct. 1937.

¹¹⁵Sometimes spelled *Erechthites*.

copses, a common weed in enriched soil, and especially where woods have been recently burned away Newfoundland and Canada to Louisiana, (Extends to S. Amer.)" Neal in 1890 (13) said:—"Thistle, Fireweed (*Erechthites*) and Spurge are traveling southward." Dr. Mohr regarded it as common throughout the state, but I have few records of it for Alabama. However, I may have seen it mostly in cities and towns, when I was not taking notes.

Although harmless enough, and never interfering with crops, this is one of our most useless and disreputable-looking weeds, very unattractive in appearance, and ill-scented besides.

MESADENIA, Rafinesque. (Formerly included in *Cacalia*, L.)

About thirty species, North American. About six in Alabama, two of them inclined to be weedy at times.

M. atriplicifolia (L.) Raf. (Indian plantain.) Native in dry or rich woods, in the northern half of the state; also occasional on roadsides.

M. tuberosa (Nutt.) Raf. A typical prairie plant, extending from Alabama northwestward to the upper Mississippi Valley. With us it is practically confined to the black belt, where it is often found in weedy fields and on roadsides, as well as in natural prairies.

SENECIO, Linnaeus.

This genus has been variously subdivided, but is said to contain about 1,500 species, widely distributed over the world. Six species were reported from Alabama by Mohr, and at least two have been added since his time; but if they were carefully studied we might have twice as many. Most of them are native, but some have weedy tendencies, and a few are always weedy.

S. Smallii Britton. This was first described in 1890, as a variety of *S. aureus* L., from which it is strikingly different. Before that it seems to have passed for *S. Balsamitae* Muhl., a species of more northern range (not mentioned at all in Small's Manual). Its foliage varies considerably, but always within certain limits, and never approaches the cordate leaves of *S. aureus*.

It may be native on rock outcrops, and in some dry open woods, but at least 99% of the specimens I have seen are weeds. It is abundant on roadsides and in old fields and pastures, in the northern half of the state. Mohr said of it, "Never met with in the low country." But it seems to be gradually pushing southward, and I have recently seen it as far south as Autauga and Elmore Counties, where I had no record of it in former years. It blooms in late April and May, a month or two later than most of the other species; and the stems die down to the ground afterward, but the basal leaves last longer.

S. Alabamensis Britton. This may not be a weed, but so little is known about it that it seems desirable to put it on record here. It was described by Dr. Britton (in Small's Flora) in 1903, from specimens collected "in moist pine woods, Dothan, Ala.," by F. S. Earle, in full bloom, April 28, 1899. Nothing else seems to have been known about it until Feb. 26, 1937, when I collected it about three miles north of Jakin, Georgia, which is about 25 miles east and a little south of Dothan, and about five miles from the Chattahoochee River which marks the state boundary. It was in full bloom at the time, and when collected in April of the following year the flowering stems were dead or dying; so Prof. Earle's specimen may have been abnormally late, possibly on account of recent grazing, fire, or some other accident.

My locality was originally a comparatively dry long-leaf pine forest, but it is now a roadside thickly covered with carpet-grass (*Axonopus compressus*), which is presumably an immigrant from the tropics, as stated on a preceding page. That gave the *Senecio* pretty good protection from fire, which most species of this genus seem to need. The particular locality where I got my specimens got additional protection from the fact that it was in a "Y" at a road junction, making a triangular patch surrounded by roads; but other specimens were seen within a mile or two without such complete protection, though likewise always in carpet-grass.

This brings up the interesting question, where did the *Senecio* grow before the carpet-grass was there to protect it? Could it have been introduced from some unknown source, about the same time with the carpet-grass?¹¹⁶ (But it is not very different from some of our native species.) More information about its occurrence in Alabama is greatly to be desired.

S. glabellus Poir. (*S. lobatus* Pers.) (Butterweed.) Easily distinguished from all our other species by the fact that it is an annual, and has all its leaves pinnately lobed. It varies considerably in size, according to the soil, etc., but in good soil it grows larger than any of our other species.

It is alleged to be native, but is known also in Mexico, and might have been introduced from there. However, it has been in this country a long time. Nuttall said of it in 1818 (2:165):—"Common around New Orleans." Elliott (2:332) made some interesting observations on it in South Carolina a few years later, as follows:—"Grows in damp soils, not absolutely inundated; rice fields when in good order are literally covered with this weed in the spring of the year, which to the planters is generally known by the name of butter weed. Flowers January to May and sometimes in October."

I have seen very little of it in Georgia, but it is common in most parts of Alabama. It sometimes grows in swamps, where it might be taken for

¹¹⁶See Jour. Ala. Acad. Sci. 9:19. "May" (June), 1937.

native,¹¹⁷ but its favorite habitat is damp fields, where it is abundant and conspicuous in spring, but disappears in summer.

Another species, introduced from Europe, and blooming in summer, was found by Dr. Mohr on ballast, presumably in Mobile County.

ARCTIUM, Linnaeus.

About six species, natives of Europe and Asia. One introduced in Alabama.

A. minus Schk. Burdock. A coarse weed with large fuzzy leaves, and purple flowers in summer. It is common around dwellings in New England, but seems to be a comparatively recent arrival in Alabama.

Darlington said of it in Pennsylvania in 1837 (436):—"The Bur-dock is known to every one; and although an introduced plant, has become a common and troublesome weed, on premises which are neglected. Chapman (who called it *Lappa major*) in 1860 and 1897 knew it no farther south than North Carolina, and I am not sure that I have seen it in Georgia. Dr. Mohr knew it only in the Tennessee Valley, and there is a little of it in Tuscaloosa.

CIRSIUM, Hill. (*Carduus*, Linnaeus, in part. Also called *Cnicus* in some 19th century books.) *The Thistles*.

About 200 species, in the northern hemisphere. Eight species and a variety have been reported from Alabama, two of them only on ballast, and some of the others are usually if not always weeds.

C. horridulum Mx. (*Carduus spinosissimus* Walt.) Alleged to be native, but always a weed, on roadsides, in pastures, etc., mainly in the coastal plain. Differs from our other species in blooming in spring, after which the stem dies, leaving only a rosette of leaves. The rarer form with light yellow or cream-colored flowers has been regarded as typical, and the common form with purple flowers called var. *Elliottii*; but it would seem better to call it a mere form rather than a variety. (See remarks under *Argemone* and *Sitilias*.)

Elliott's account of its habitat is a little different from ours. He said of it in 1822 (2:272):—"Grows in dry poor soils. Very generally diffused over our country. Flowers March-April." Chapman in 1860 (248) said:—"Sandy soil, Florida and northward. April and May."

C. lanceolatum (Lam.) Hill, native of Europe, is scattered over the state, according to Mohr, but I have not identified it often enough to give definite localities. Darlington said of it in Pennsylvania in 1837 (437):—"Pastures;

¹¹⁷See Torrey, 34:108. 1934.

along fence-rows, &c. common. . . . An introduced and troublesome weed,—delighting in a rich soil, and requiring some attention to keep it in subjection."

Mohr's two ballast species are also European.

CENTAUREA, Linnaeus.

About 350 species, mostly in the Old World.

Dr. Mohr reported two species on ballast in Mobile County. Another, **C. Cyanus** L., with flowers usually blue, but sometimes pink or white, cultivated for ornament, sometimes strays outside of gardens, much like the larkspur (which it also resembles in assortment of flower colors).

Darlington said of it in Pennsylvania in 1837 (435):—"This species is frequent about gardens; and is becoming partially naturalized in some of our fields."

CICHORIACEAE. Chicory Family. (Formerly included with the two preceding families in Compositae.)

About 70 genera and 1,500 species, widely distributed. A few (such as lettuce) are used for food, but more are weeds.

SERINEA, Rafinesque. (*Apogon*, Elliott.)

Three species, North American. One in Alabama.

S. oppositifolia (Raf.) Kuntze. (*Apogon humilis* Ell.) Another alleged native that is always a weed. Its favorite habitat is damp fields, where it blooms in spring and disappears in summer, like many other of our weeds. It is fairly common throughout the state. It was regarded by Elliott, when he described it in 1822 (2:267) as a new genus and species (probably without knowing that Rafinesque had "beaten him to it" by a few years), as very rare in South Carolina, but he gave no indication of its habitat; and Chapman did not either in the first or last edition of his *Flora*.

KRIGIA, Schreber. (*Adopogon*, Necker.)

This genus has been variously interpreted, but is now restricted to one species in Small's Manual.

K. Virginica (L.) Willd. (*Adopogon Carolinianum* (Walt.) Britton.) (No bona-fide common name.) Alleged to be native, and might be so on rock outcrops, but is nearly always a weed, along roadsides, railroads, and in other places whose natural condition has been considerably altered. It is common in most parts of the state, blooming in spring and disappearing in

summer. Some 19th century authors, such as Elliott and Chapman, tried to make two species of this, but the supposed differences do not seem important.

Darlington said of it in Pennsylvania in 1837 (441):—"Dry, sandy grounds; roadsides, &c. frequent. . . . This plant varies considerably in appearance, in different stages of its progress to maturity. It is the only species of the genus."

CYNTHIA, D. Don. (Formerly combined with *Krigia*.)

Three or four species, North American. Two in Alabama, one if not both native.

C. Dandelion (L.) DC. (*Krigia Dandelion* Nutt.) Possibly native, but grows mostly in clearings and groves, in the northern half of the state. Not very common. Blooms in spring. My southernmost record is along the railroad between Cromwell and Halsell, Choctaw County, April 18, 1913. But Dr. Mohr found it in Mobile County.

SITILIAS, Rafinesque. (*Pyrrhoppus*, DeCandolle.)

About six species, North American. One a common weed in Alabama.

S. Caroliniana (Walt.) Raf. (False dandelion.) Alleged to be native, but always a weed. Elliott in 1822 (2:251) gave its habitat as "pastures and cultivated land—very common," and Chapman in 1860 (252) as "fields." It grows abundantly on roadsides and in other weedy places, pretty widely distributed over the state. Blooms mostly in May, but sporadically at other times. The flowers open only in the morning, and face the sun. They are normally lemon-yellow, but a cream-colored form, which I have described as forma *Alabamensis*, is common around Tuscaloosa, and occasional in other parts of the state.¹¹⁸

LEONTODON, Linnaeus.

A small Old World genus, variously interpreted.

L. autumnalis L. (Fall dandelion.) Native of Europe. This has not been supposed to grow in the southeastern states at all, but if correctly identified it has appeared several times in recent years on lawns on and near the University campus, where it has a precarious existence on account of mowing, much as in the case of *Madia*, already mentioned.

¹¹⁸Torrey, 33:143-146. Dec. 1933.

TARAXACUM, Haller. *The Dandelions.*

Sometimes combined with the preceding genus. Comprises twenty or more species, mostly in cool regions. One introduced in Alabama.

T. officinale Weber. (*T. Dens-Leonis* Desf.; *Leontodon Taraxacum* L.) Common dandelion. Native of Europe. A very common weed in the North, especially on lawns, where it is objectionable because its flower stalks renew themselves quickly after mowing, and soon develop clusters of feathery achenes, which would be pretty enough by themselves, but mar the smooth green uniformity of the lawn. One redeeming feature of it is that the leaves make very good spring salad.

Elliott said of it in South Carolina in 1822 (2:250-251):—"Grows in damp soils. An exotic now naturalized. Flowers from January to April." Darlington said of it in Pennsylvania in 1837 (443-444):—"Pastures, roadsides, &c. very common. . . . This foreigner is completely naturalized; and rather more abundant than welcome, in our pastures. It is said to be esteemed by some, as a salad." Chapman's account of it in 1860 (252) was similar to Elliott's, but less detailed. Neal in 1890 (7), telling how some northern weeds do not flourish in Florida, said:—"Dandelions are but mere shadows of the golden beauties that dot the meadows of the North." In Alabama it is not abundant, and is chiefly confined to cities and towns, in the northern half of the state.

LACTUCA, Linnaeus. *The Lettuces.*

About 75 species, in the Northern Hemisphere. Four or five in Alabama, all more or less weedy.

L. Canadensis L. (Wild lettuce.) Alleged to be native, but apparently usually if not always a weed, on roadsides, in old fields, etc., especially northward. Blooms in late summer.

Three other species reported by Mohr may not differ much from this.

L. Scariola L. (Also called *L. Serriola*.) (Prickly lettuce.) Native of Europe, and scarcely known in the southeastern states fifty years ago. An editorial note on it in *Garden and Forest* for December 5, 1894, covering half a page, states that it was first observed in the United States thirty years before, at Cambridge, Mass., and between 1878 and 1882 appeared in nearly all the prominent railroad centers along the Great Lakes and Mississippi River. It was not recognized by Chapman as a member of the southern flora as late as 1897.

Dewey's map of 1897 does not put it in Alabama, and it is not listed by Mohr; but I found it in northern Georgia as long ago as 1900.¹¹⁹ It is now quite

¹¹⁹Bull. Torrey Bot. Club, 38:484. 1901.

common and widely distributed in Alabama. At first it seemed to stick pretty closely to railroads; but now it is common on roadsides also, and it had reached the top of our highest mountain, presumably by "hitch-hiking" in automobiles, by 1940.

A form with leaves not lobed, but otherwise similar (var. *integrata*, or *L. virosa* L.) has exactly the same habitats, but is less common. I have not noticed any intermediate forms, but the possibility of its being a mutant from *L. Scariola* is probably not eliminated.

MULGEDIUM, Cassini.

Formerly included in *Lactuca*, but differs in having blue flowers, and achenes not long-beaked. Comprises about 25 species, in the Northern Hemisphere. Two have been reported from Alabama, but they may not differ much.

M. Floridanum (L.) DC. (*Lactuca Floridana* (L.) Gaert.) Alleged native, but appears almost if not quite as weedy as *Lactuca Canadensis*, which it resembles also in size and habitat. It is apparently rather less common.

SONCHUS, Linnaeus. (*The Sow-thistles.*)

About 45 species, European. Three reported from Alabama.

S. asper (L.) All. Fairly common on roadsides and in waste places, especially in cities and towns. Blooms in early summer.

S. oleraceus L. is said by Mohr to occur with the preceding, but I have not distinguished it.

Another European species is reported by Mohr as a rare fugitive on ballast.

BIBLIOGRAPHIC HISTORY OF OUR WEEDS AND NATIVE PLANTS.

Weeds as a rule are pretty widely distributed species of plants. Although some of them are as yet rare in Alabama, such species are generally common in some other part of the world; while in the case of native plants we have a few species known in only one county, about two dozen not known outside of the state, and perhaps as many as a hundred peculiar to the southeastern states. (And in other parts of the United States, and in other countries, there are many equally restricted native species.) Besides being so widely distributed in this country that they could not easily escape attention, many of our weeds came from Europe, where they have been well known for centuries.

Even though some of our weed species may differ so little from related ones that they have not been recognized very long, and might even be recent mutations, over 60% of the genera to which they belong were known to Linnaeus, the noted 18th century Swedish naturalist, and his contemporaries. Linnaeus published the first comprehensive classification of the vegetable kingdom, the "Species Plantarum," containing hundreds of American records (apparently none from farther southwest than South Carolina, however) in 1753, and it is customary to date botanical nomenclature from that.

In the bibliography there are incidental references to the proportion of weed species in certain 1900 lists that were known to Linnaeus a century and a half before. That matter is now treated in more detail, by showing what proportion of our weeds and native plants were known to science at any time since 1753, and contrasting the two groups on a graph (Fig. 2).

The number of species of weeds known in Alabama at several different times has already been estimated (page 57), but the date of original description is a different matter, for several species well known in Europe, or tropical America, 150 years ago, may have arrived in Alabama only during the present century.

In constructing the graph Mohr's Plant Life in Alabama (1901) has been used, for that contains bibliographic citations of

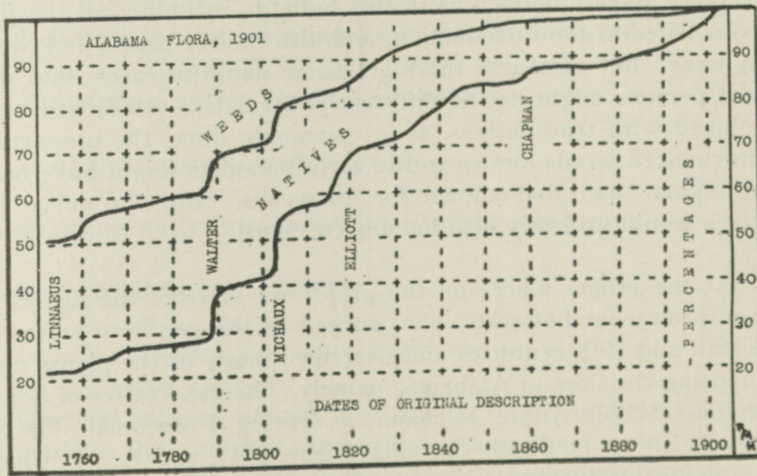


Fig. 2. Graph illustrating bibliographic history of 568 species of weeds and 1706 species of native flowering plants listed in Mohr's Plant Life of Alabama, 1901. Vertical distances represent percentages, and the height of any point on either curve shows the percentage of the species that were known to science at the time indicated. The names of five prominent 18th and 19th century botanists are inserted at the places corresponding to the dates of their published works. (This might be compared with some similar curves for the Altamaha Grit region of Georgia in *Annals N. Y. Acad. Sci.*, 17:339, 341. 1906.)

every species. To bring the study down to date it would be necessary first to list the plants added to the known flora of the state since 1901 (perhaps 200 species), and then look up the date of description of each, which would be a tedious task. I have gone through the book and counted for each year from 1753 to 1901 the number of weeds, and of native plants (counting flowering plants only) first described in that year. And then cumulative percentages for each year have been calculated, and plotted.

Weed is here defined as in this bulletin, including all the five classes listed in the introduction, and also ballast plants and other "fugitives"; but of course there are some doubtful cases, that different persons might decide differently. If native weeds had been combined with true natives, as is commonly done, the proportion of introduced weeds known to the early botanists might have been still higher than that shown for all weeds. But the curve for natives would probably also have been raised.

At the proper places on the graph are inserted the names of a few prominent botanists who worked in the southern states in the 18th and 19th centuries and described many of the plants now composing the flora of Alabama; namely, Thomas Walter of South Carolina (1788), Andre Michaux, a visiting Frenchman (1803), Stephen Elliott of South Carolina (1816-1824), and A. W. Chapman of Florida (1860).

The graph shows that slightly more than half of our weeds, but less than one-fourth of our native plants (as of 1901) were known to Linnaeus in 1753. (An up-to-date graph would show both curves, especially that for native plants, lower at the beginning). On the completion of Michaux's *Flora Boreali-Americana* in 1803, a little more than half of the natives and three-fourths of the weeds were known. Since then the increase has been less rapid. Similar curves for other southeastern states should not differ much from these. (One for native plants in southeastern Georgia appeared in my 1906 work cited in the bibliography.)

STATISTICAL SUMMARY.

The following table shows for each of the 102 families represented in the weed catalogue the number of genera containing weeds, the number of weed species in each of six categories, total weeds, and approximate total number of species in the known flora of the state. The categories were described in the introduction, but will be summed up briefly here for convenience, as follows.

1. Native species, occasionally in weedy habitats.
2. Supposed natives, but usually weedy.
3. Alleged natives, always weedy.
4. Accidentally introduced (and mostly obnoxious).
5. Escaped from cultivation.
6. Ballast plants and other fugitives.

The last class is not included in the totals, because they are not listed in the catalogue, and in most cases there is no certainty that they exist in the state at the present time. But some species known to Dr. Mohr only as ballast plants have since become pretty well established, and other fugitives may become naturalized or domiciled, so to speak, hereafter.

The numbers in the table of course are not fixed and final, for different persons might not agree on the classification, but they at least show the approximate relative size of the different categories, which does not vary much from one large division of flowering plants to another, as shown in the summary at the end of the table.

The third class, native weeds, which has received scant recognition heretofore,¹²⁰ comprises just about 20% of all our weeds

¹²⁰Botanists in other states who have overlooked this category have probably drawn the line between natives and weeds on the basis of statements in the manuals, rather than on what they could see for themselves.

(excluding fugitives). And all weeds constitute about 20% of the flowering plants of the state, or 25% if fugitives are included.

In a somewhat similar table near the end of Mohr's Plant Life of Alabama, native weeds, as usual, are not distinguished from true natives, and the presumably introduced species are divided into naturalized (113 species), adventive or fugitive (145), and escaped from cultivation (55). Total 313. These three categories correspond approximately to my 4th, 6th and 5th respectively.

In a few of the works cited in the bibliography, particularly those of Gray (1878), and Deam (1940), there are tables showing the number of supposed native and introduced species in each family.

CLASSIFICATION OF ALABAMA WEEDS, BY FAMILIES

Families	Weedy genera	Occasionally weedy	Usually weedy	Alleged natives	Accidentally introduced	Escaped from cultivation	Fugitives	Total weeds (excl. fugitives)	Approximate number in family in Ala.
Pinaceae	1	2						2	18
Juniperaceae	1	1						1	5
Typhaceae	1	1					1	1	2
Gramineae	35	8	9	8	27	8	18	60	290
Cyperaceae	7	7	7	4	9	1	3	28	185
Palmae	1	1						1	3
Araceae	1		1					1	7
Commelinaceae	1				1			1	8
Pontederiaceae	1					1		1	3
Juncaceae	1		1	3	1			5	20
Liliaceae	6	2	1	1	1	3		8	40
Smilacaceae	1	3						3	12
Amaryllidaceae	1				1			1	10
Iridaceae	1				1			1	12
Saururaceae	1	1						1	1
Salicaceae	2	2				1		3	8
Betulaceae	1	1						1	7
Urticaceae	1		1	1			1	2	10
Ulmaceae	1	1	1					2	7
Moraceae	3	1				3		4	6
Platanaceae	1	1						1	1
Polygonaceae	5	1	1	3	7		3	12	40
Chenopodiaceae	1				3		4	3	18
Amaranthaceae	3		1		6		6	7	16
Phytolaccaceae	1			2				2	2
Nyctaginaceae	1				1		1	1	4
Aizoaceae	1				1			1	4
Portulacaceae	2	1			1	1		3	5
Alsiniaceae	5		1	4		4		6	15
Caryophyllaceae	3			1	1	1	1	3	12
Ranunculaceae	3		2		3	1		6	45
Menispermaceae	1			1				1	3
Lauraceae	1		1					1	5
Papaveraceae	1				1			1	8
Nymphaeaceae	1							1	7
Cruciferae	10			3	9	1	7	13	38

CLASSIFICATION OF ALABAMA WEEDS, BY FAMILIES
(Continued)

Families	Weedy genera	Occasionally weedy	Usually weedy	Alleged natives	Accidentally introduced	Escaped from cultivation	Fugitives	Total weeds (excl. fugitives)	Approximate number in family in Ala.
Capparidaceae	1					1	3	1	6
Penthoraceae	1		1					1	1
Saxifragaceae	1			1				1	16
Altingiaceae	1	1						1	1
Rosaceae	6	4	3	2	2	3		14	30
Malaceae	2	3						3	25
Amygdalaceae	2		1	1		2		4	12
Mimosaceae	3			1		2		3	6
Caesalpiniaceae	3	1	1	2	2			6	14
Fabaceae	20	7	2	3	16	5	14	33	150
Geraniaceae	1			1			1	1	3
Oxalidaceae	1	1		1				2	7
Rutaceae	1	1						1	3
Simarubaceae	1					1		1	1
Meliaceae	1					1		1	1
Euphorbiaceae	8	3	3	4	8	1		18	40
Callitrichaceae	1			1			5	1	5
Anacardiaceae	2	1	2					3	7
Aquifoliaceae	1	1						1	12
Aesculaceae	1	1						1	4
Capindaceae	1		1					1	2
Rhamnaceae	2	3						3	6
Vitaceae	2	2	2		1			5	10
Tiliaceae	1				1		1	1	5
Malvaceae	4	1		1	5		5	7	25
Sterculiaceae	1				1		1	1	3
Hypericaceae	2		2	2				4	25
Cistaceae	2	1	1		1			3	15
Violaceae	1			2				2	25
Passifloraceae	1			1				1	2
Cactaceae	1	1						1	4
Lythraceae	3	1	1			1	1	3	10
Melastomaceae	1	2						2	8
Onafrageae	8	3	4	5	4			16	25
Haloragidaceae	1					1		1	5
Cornaceae	1	1						1	7
Umbelliferae	10	2	2	2	6		4	12	50

CLASSIFICATION OF ALABAMA WEEDS, BY FAMILIES (Continued)

Families	Weedy genera	Occasionally weedy	Usually weedy	Alleged natives	Accidentally introduced	Escaped from cultivation	Fugitives	Total weeds (excl. fugitives)	Approximate number in family in Ala.
Primulaceae	2				1	1	1	2	10
Ebenaceae	1		1					1	1
Oleaceae	1					1		1	10
Loganiaceae	3	1			1	1		3	5
Apocynaceae	2			1		2		3	5
Asclepiadaceae	3	3	2					5	20
Dichomdraceae	1				1			1	1
Convolvulaceae	4	2	1	2	3	4	1	12	22
Hydrophyllaceae	3	4	1					5	11
Polemoniaceae	2	1				1		2	12
Solanaceae	4	1		1	5	1	12	8	35
Boraginaceae	3			2	3	1		6	16
Verbenaceae	5	1		2	4	5	5	12	20
Labiatae	15	3	2	4	6	5	4	20	65
Scrophulariaceae	7	1		4	5	1	5	11	70
Acanthaceae	2	2						2	12
Bignoniaceae	2		2					2	3
Martyniaceae	1				1		1	1	1
Plantaginaceae	1			3	3			6	10
Rubiaceae	6	3	2	3	3			11	30
Caprifoliaceae	3	1	2			1		4	18
Valerianaceae	1			1		1		2	2
Cucurbitaceae	1					1	3	1	8
Campanulaceae	2	1		2				3	4
Lobeliaceae	1			1				1	13
Ambrosiaceae	3			3	2		1	5	10
Carduaceae	48	13	15	22	23	4	19	77	300
Cichoriaceae	9		2	4	4		4	10	28
Summary									
Gymnosperms	2	3						3	
Monocotyledons	57	22	19	16	41	13	22	111	
Apetalae	21	8	4	6	17	4	16	39	
Polypetalae	188	43	30	36	67	21	47	197	
Gamopetalae	137	38	30	56	65	30	57	219	
Total	344	114	83	114	190	67	142	569	

A table of this sort is not of much use unless some of its salient features are pointed out.

In Alabama, as elsewhere, the weediest families are commonly those that are partial to rich soils, and contain the largest number of plants cultivated for food or other important uses. The families represented by the largest number of weeds (excluding fugitives) in the table are *Carduaceae*, with 77 species, *Gramineae*, with 60, *Fabaceae*, 33, *Cyperaceae*, 28, *Labiatae*, 20, *Euphorbiaceae*, 18, *Onagraceae*, 16, *Rosaceae*, 14, *Cruciferae* 13, *Polygonaceae*, *Umbelliferae*, *Convolvulaceae* and *Verbenaceae*, 12 each, *Scrophulariaceae* and *Rubiaceae*, 11 each, and *Cichoriaceae*, with 10.

But some of these are pretty large families anyway, and the ratio of weeds to all species in the known flora of the state would be more significant. Disregarding families with less than 15 species (all of which are weeds in some cases), our weediest family seems to be the *Onagraceae*, with 64% of its species weeds, native or otherwise. Next are *Verbenaceae*, with 60%, *Convolvulaceae*, 55%, *Rosaceae*, 46%, *Euphorbiaceae*, 45%, *Amaranthaceae*, 44%, *Alsiniaceae*, 40%, *Boraginaceae*, 37%, *Rubiaceae*, 37%, *Cichoriaceae*, 36%, *Cruciferae*, 35%, *Labiatae*, 31%, *Polygonaceae*, 30%, *Malvaceae*, 28%, *Juncaceae* 25%, *Caryophyllaceae* 25%, *Solanaceae* 23%, *Fabaceae* 22%, *Caprifoliaceae* 22%, *Gramineae* 21%, *Liliaceae* 20%, and *Cistaceae* 20%.

Some fairly large families that have few or no weeds are the *Orchidaceae* and *Ericaceae*. These plants generally grow in acid soils, and very few of them are cultivated for food, though some of them are quite ornamental. The *Cyperaceae* (sedges) generally grow in poorer soils and furnish far fewer food products than the *Gramineae* (grasses), but the difference between them in weed ratio is less than might have been anticipated, though in the direction expected. (It is considerably greater in Mohr's table, of 1901.)

INDEX

In this index technical names of plants, including synonyms, are printed in italics, common names (genuine or otherwise) enclosed in quotations, and all other topics, including plant family names, printed in ordinary type. Where a genus is represented in this bulletin by only one species, or all the species listed are on one page, specific names are omitted in most cases, to save space. Names of persons indexed are chiefly those whose publications are cited in the bibliography or in the catalogue, or both, and not mere authors of plant names. In the case of certain topics referred to many times in the catalogue (pages 59-247), full lists of page references are not given. Numbers in parentheses indicate pages where the topic in question is referred to indirectly, or under a different name.

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